

**May 19, 2014  
Project No. 2570-308-01-02**

**PHASE I  
ENVIRONMENTAL SITE ASSESSMENT**

**Former RG Steel Facility  
1430 Sparrows Point Boulevard and  
5111 North Point Boulevard  
Sparrows Point, Maryland**

**Prepared For:**

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**EXECUTIVE SUMMARY**

Bryan Cave LLP (the *user*) retained **Weaver Boos Consultants, LLC** (Weaver Boos) to perform a *Phase I Environmental Site Assessment* (ESA) of the Former RG Steel Facility located at 1430 Sparrows Point Boulevard and 5111 North Point Boulevard in Sparrows Point, Maryland (the Property)<sup>1</sup>. Weaver Boos performed this Phase I ESA in general compliance with the American Society for Testing Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-13) in an effort to identify, to the extent feasible, the presence of *recognized environmental conditions* with respect to the Property as defined in ASTM E 1527-13. Limiting conditions, exceptions to, or deletions from this practice are described in **Sections 1.5** and **12.0** of this *report*.

The Property consists of an approximate 3,100 acre parcel located on the Sparrows Point Peninsula in the Chesapeake Bay watershed. The site consists largely of the former Sparrows Point steel mill plant which was historically owned and operated by Bethlehem Steel Company. Two solid waste landfills identified as Coke Point landfill and Greys landfill are also included as part of the Property and accepted various wastes from the steel making portion of the Property. Along the eastern portions of the Property several non-industrial leased properties are present. The Property is currently shut down from all industrial operations. The majority of the former structures have been removed with active demolition activities observed to be taking place on the Property during the *site visit*. The areas where buildings and facilities had been removed were observed to largely be vacant land with some debris piles and miscellaneous storage buildings still present during the *site visit*. However, Weaver Boos observed select facilities still in operation including but not limited to the Humphrey Creek Waste Water Treatment Plant (HCWWTP), Greys Landfill, a railroad repair shop, the plant garage, security building and various tenant spaces.

Based on our review of historical sources and interview documentation, industrial operations have occupied the Property since 1887. Pennsylvania Steel built the first furnace at the Sparrows

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<sup>1</sup> This report was compiled in consultation with the current Site owner, Sparrows Point LLC. However, the conclusions and opinions contained herein are solely those of Weaver Boos Consultants, LLC and its client, Bryan Cave, LLP on behalf of the prospective purchaser. Sparrows Point LLC's cooperation with this ESA should not be construed as agreement with any particular conclusion in this ESA regarding Recognized Environmental Conditions or agreement with any particular characterization of Site history or environmental conditions on or near the Site.

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Point facility in 1887 and the first iron was cast in 1889. In 1916, Bethlehem Steel Corporation (BSC) purchased the Sparrows Point facility and enlarged it with the addition of mills to produce hot rolled sheet, cold rolled sheet, galvanized sheet, tin mill products, and steel plate. During the peak production in 1959, the facility operated twelve (12) coke oven batteries, ten (10) blast furnaces, and four open hearth furnaces. The coke ovens ceased operations in December 1991. Demolition work began in June 1992 and was completed by November 1993 for batteries 1-6 and 9-10. Batteries 7 and 8 had been removed during the 1980's. Batteries A, 11, and 12 were torn down in the 1990s.

In October 2001, BSC filed for bankruptcy protection. The International Steel Group (ISG) subsequently purchased BSC on April 22, 2003. Mittal Steel acquired ISG on April 5, 2005 and on June 26, 2006, Mittal Steel merged with Arcelor, forming ArcelorMittal. On May 13, 2008, ISG Sparrows Point, LLC merged with Severstal Sparrows Holding LLC and was renamed Severstal Sparrows Point, LLC (Severstal). On April 14, 2011, Severstal changed its name to RG Steel Sparrows Point, LLC (RG Steel). Steel manufacturing operations continued at the facility throughout this time period. Iron and steelmaking operations were shut down in May 2012 and RG Steel filed for bankruptcy on June 4, 2012. The Property was put up for auction on August 7, 2012. On September 14, 2012, the above-grade assets and certain other improvements on the Property were sold in a joint venture to Sparrows Point LLC and HRE Sparrows Point LLC. Throughout 2013 and 2014, HRE Sparrows Point LLC and its demolition contractor MCM Management Corporation (MCM) have been demolishing structures on the Property and were continuing demolition activities during Weaver Boos' *site visit*.

On February 25, 1997, the United States Environmental Protection Agency (USEPA) filed a complaint under the Resource Conservation and Recovery Act (RCRA) against BSC claiming that BSC operated a hazardous waste treatment, storage, or disposal facility and that a release of hazardous constituents had occurred. On October 8, 1997, BSC, the USEPA, and the Maryland Department of the Environment (MDE) entered into a Consent Decree to address releases from historical and on-going operations at the facility. As required by the Consent Decree, BSC submitted a Description of Current Conditions (DCC) Report on January 20, 1998 describing prior investigations and identifying potential sources of contaminants. According to the DCC Report, a total of 203 Solid Waste Management Units (SWMUs) and twenty-eight (28) Areas of Concern (AOCs) were initially identified at the facility as part of the RCRA Facility Assessment (RFA) completed in 1988 and revised in 1993. Based on additional screening and further evaluation, a total of eighty-four (84) SWMUs and twenty-six (26) AOCs were selected for further consideration following completion of the DCC Report. Since 1999, approximately

twenty-five (25) work plans and reports have been submitted to the USEPA and MDE for review and approval. While various investigation reports have been submitted and approved by the MDE, a comprehensive Site-Wide Investigation (SWI) Report has not been completed to date as required by the Consent Decree.

The Consent Decree identified the following five Special Study Areas (SSAs) on the Property as priority areas for investigation:

- Tin Mill Canal/Finishing Mills;
- Greys Landfill;
- Coke Point Landfill;
- Coke Oven Area; and
- Humphrey Impoundment.

Interim measures (IMs) were required by the USEPA and MDE in the former Rod and Wire Mill and Coke Oven Area. The Consent Decree requires that BSC submit a Corrective Measures Study (CMS) Report to the USEPA and MDE. A proposed CMS Work Plan for the Coke Oven SSA was submitted to USEPA on April 13, 2013. CMS work plans have not been submitted for the remaining SSAs.

On February 19 through 21, 2014, Weaver Boos representatives Ms. Chrystine Shelton, Mr. Steven Stanford, and Mr. Doug Dorgan visually assessed the Property for *recognized environmental conditions*, including but not limited to, the presence of *hazardous substances, hazardous wastes, petroleum products, other wastes, underground storage tanks (USTs), aboveground storage tanks (ASTs), polychlorinated biphenyl (PCB)-containing equipment, or other potential environmental concerns*.

Weaver Boos also performed a review of commercially available government records in an effort to identify *recognized environmental conditions* in connection with the Property. This records review addressed not only the Property, but also surrounding properties. The records review also included *reasonably ascertainable* historical data, which can be helpful in identifying the past uses of the Property and surrounding areas, as it may relate to the environmental condition of the Property.

Finally, Weaver Boos performed *interviews* with various government agencies and other parties with possible knowledge of the Property and surrounding properties in an effort to identify

current and past uses of the Property and surrounding areas, as they may relate to the environmental condition of the Property.

ASTM E 1527-13 defines a *recognized environmental condition* as the presence or likely presence of any *hazardous substances* or *petroleum products* in, on, or at a *property*: (1) due to any *release* to the *environment*; (2) under conditions indicative of a *release* to the *environment*; or (3) under conditions that pose a *material threat* of a future *release* to the *environment*. *De minimis* conditions are not *recognized environmental conditions*. Weaver Boos has identified a total of 285 Findings in connection with the Property as described in **Table 1: Property Findings**.

Based upon the assessments described in this *report*, this Phase I ESA revealed evidence of a total of twenty-eight (28) *recognized environmental conditions* and eight *historical recognized environmental conditions* in connection with the Property. These items have been described in **Table 1** as well as **Table 2: Property Recognized Environmental Conditions**. Additional information in regards to these *recognized environmental conditions* and *historical recognized environmental conditions* can be found in **Section 9.0**.

As of the date of this *report*, a Freedom of Information Act response from the Baltimore County Department of Health has not been received. Weaver Boos has received a response and a portion of the available records from the Maryland Department of the Environment (MDE). We are currently coordinating with them to retrieve additional pertinent records. Weaver Boos submitted an additional FOIA request to MDE on April 10, 2014 specifically requesting information from the Radiological Health Program. A response from MDE acknowledging receipt of our request was received on April 21, 2014 and indicated we will be notified if any pertinent records exist. Records from the USEPA have been reviewed and summarized in this *report*. Weaver Boos lists the lack of requested FOIA information as a *data gap*. See **Section 10.0** for additional information on *data gaps* identified during this Phase I ESA.

This Executive Summary provides a brief overview of the findings of this Phase I ESA. Although the Executive Summary is an integral part of the *report*, it does not substitute for reading the entire *report* or the appended or referenced documents to fully understand the findings and conclusions of this Phase I ESA.

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 Former RG Steel Facility  
 1430 Sparrows Point Boulevard and  
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## 1.0 INTRODUCTION

**Weaver Boos Consultants, LLC** (Weaver Boos) completed this *Phase I Environmental Site Assessment* (ESA) of the Former RG Steel Facility property located at 1430 Sparrows Point Boulevard and 5111 North Point Boulevard in Sparrows Point, Maryland (the Property) (see **Figure 1 - Property Location Map**)<sup>1</sup>.

Weaver Boos performed this Phase I ESA in general compliance with the scope and limitations of American Society for Testing Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-13) and the terms and conditions of Weaver Boos proposal WNCPC-001-28-13 dated July 17, 2013 incorporated herein by reference. Weaver Boos understands that this Phase I ESA was conducted for the benefit of Bryan Cave LLP (the *user*). Weaver Boos also understands that this Phase I ESA was conducted to meet the environmental due diligence requirements of Hilco Real Estate Holdings, LLC and its affiliates (Hilco).

The following sections of this *report* present our Phase I ESA findings and conclusions. A glossary containing terms and definitions presented in ASTM E 1527-13 as indicated by italicized text in this *report* is included in **Appendix A – Glossary of Terms**. Other appendices presented at the end of the *report* consist of figures, interview and *user*-provided information, photographic documentation, regulatory records review documentation, historical records, and personnel qualifications.

### 1.1 Purpose

The purpose of this Phase I ESA is to identify and report, to the extent feasible, *recognized environmental conditions* with respect to the Property. ASTM E 1527-13 defines a *recognized environmental condition* as:

*The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions*

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<sup>1</sup> This report was compiled in consultation with the current Site owner, Sparrows Point LLC. However, the conclusions and opinions contained herein are solely those of Weaver Boos Consultants, LLC and its client Bryan Cave, LLP on behalf of the prospective purchaser. Sparrows Point LLC's cooperation with this ESA should not be construed as agreement with any particular conclusion in this ESA regarding Recognized Environmental Conditions or agreement with any particular characterization of Site history or environmental conditions on or near the Site.

*indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions.*

Performing a Phase I ESA in general compliance with ASTM E 1527-13 may enable a *user* to satisfy one of the requirements to qualify for the *innocent landowner, contiguous property owner, or bona fide prospective purchaser* limitations on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) liability; that is, the practice that constitute “*all appropriate inquiry* into the previous ownership and uses of the *property* consistent with good commercial or customary practice” as defined in 42 U.S.C. Section 9601(35)(B).

## **1.2 Detailed Scope-of-Services**

Weaver Boos performed this Phase I ESA in general compliance with ASTM E 1527-13, and the terms and conditions of Weaver Boos proposal WNCP-001-28-13 dated July 17, 2013. The scope of services for this Phase I ESA included the following:

- A review of *standard environmental record sources* pursuant to ASTM E 1527-13 regarding environmental activities for the Property and local area properties;
- A review of reasonably ascertainable, practicably reviewable, and publicly available historical aerial photographs, fire insurance maps, topographic maps, local street directories, zoning/land use records in an effort to assess past Property conditions;
- *Interviews* with reasonably available *key site manager*, past and present Property owners, occupants, operators, and state and or local government agencies by or under the supervision of an *environmental professional*;
- A *site reconnaissance* by or under the supervision of an *environmental professional* in an effort to assess the current use of the Property and to identify potential environmental concerns including but not limited to, the presence of *hazardous substances, hazardous wastes, petroleum products, other wastes, underground storage tanks (USTs), aboveground storage tanks (ASTs), polychlorinated biphenyl (PCB)-containing equipment, or other potential environmental concerns*;
- A *site reconnaissance* by or under the supervision of an *environmental professional* from reasonably accessible public thoroughfares in an effort identify the current use of the adjoining properties and potential environmental concerns including, but not limited to, the presence of *hazardous substances, hazardous wastes, petroleum products, other*

wastes, USTs, ASTs, PCB-containing equipment, or other potential environmental concerns; and

- Tier 1 Vapor Encroachment Screen (VES) to identify the presence or likely presence of contaminant of concern vapors in the subsurface of the Property caused by the release of vapors from impacted soil or groundwater either on or near the Property per ASTM E 2600-10; and
- Preparation of this Phase I ESA *report*.

Weaver Boos initiated this Phase I ESA pursuant to verbal authorization received from Bryan Cave LLP on December 27, 2013. The activities performed as part of this Phase I ESA are applicable to a Master Service Agreement (MSA) dated August 2, 2013 by and between Weaver Boos and Bryan Cave LLP. Weaver Boos Proposal WNCP-001-28-13 dated July 17, 2013 contains the scope of services, cost estimate, and the Terms and Conditions applicable to the performance of this Phase I ESA.

### **1.3 Standard of Care**

Weaver Boos conducted this Phase I ESA using a defined scope of services considered appropriate and agreed upon by all parties on the date the service was authorized, unless the scope of services or the methods used were later modified, in writing, and accepted by all parties prior to performance. Weaver Boos conducted this Phase I ESA in accordance with generally accepted practices in a manner consistent with that level of care exercised by other members of our profession in the same locality and under similar conditions of time and accessibility of improvements and information. No other representations, expressed or implied, and no warranty or guarantee is included or intended to be part of this Phase I ESA.

The scope of services performed in execution of this assessment may not be appropriate to satisfy the needs of other parties. Weaver Boos is therefore not responsible for independent conclusions, opinions, or recommendations of others based on our assessment. Furthermore, this Phase I ESA relates to the environmental conditions of the Property and does not address issues raised in transactions such as business risk, purchase of business entities, or interests therein, or of their assets, that may well involve environmental liabilities pertaining to properties previously owned or operated or other off-site liabilities.

Additionally, the findings of this Phase I ESA are based on Weaver Boos' observations, inquiries, and historical research using *reasonably ascertainable* and *practically reviewable* information obtained within *reasonable time and cost* constraints. Weaver Boos does not

represent that this Phase I ESA is an exhaustive assessment that reflects the findings of all of the information available for the Property, nor is it representative of any future Property conditions. If additional information concerning the Property is discovered, it should be provided to us so that we may evaluate its impact on our conclusions. As such, any activities or episodes that transpire subsequent to this Phase I ESA are not considered in this assessment. A Phase I ESA performed in general compliance with ASTM E 1527-13 is not intended to be an exhaustive assessment of a *property* nor can it wholly eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with a *property*.

#### **1.4 Significant Assumptions**

This Phase I ESA is based in part on information obtained from visual observations of the Property and vicinity, commercial data sources, and interviews with government agency representatives, representatives of the *owners* of the Property and *occupants* of the Property. Weaver Boos assumes this information to be accurate, complete, and representative of Property conditions unless some fact or circumstance made known to Weaver Boos through the course of this assessment reasonably suggests otherwise.

#### **1.5 Limiting Conditions and Exceptions**

ASTM E 1527-13 requires that the *environmental professional* shall document, in the *report*, general limitations and basis of review, including limitations imposed by physical obstructions such as adjacent buildings, bodies of water, asphalt, or other paved areas, and other physical constraints (for example snow or rain). Weaver Boos identified no limiting conditions in performing this assessment other than the following:

- Due to the large size of the Property, Weaver Boos was not able to visually observe the entire exterior surface of the Property, nor the interior and/or exterior of every building on the Property.
- Weaver Boos was not able to view the interior of the tenant spaces and had limited access to the exterior of the tenant spaces on the Property due to access restrictions on the privately owned businesses.
- Due to the presence of Property buildings, gravel, concrete and asphalt surfaces, bodies of water, dense vegetation, parked automobiles, stored equipment and materials, as well as snow and ice, Weaver Boos was unable to fully assess the entire exterior surface of the Property.

- Due to the presence of stored equipment and materials, parked automobiles, safety restrictions, and active demolition activities, Weaver Boos was unable to visually observe the entire interior surfaces of the buildings located on the Property.

Weaver Boos identified no exceptions in performing this assessment.

## **1.6 Special Terms and Conditions**

There were no special terms and conditions associated with performing this assessment beyond those in Weaver Boos proposal WNCP-001-28-13 dated July 17, 2013 and the MSA dated August 2, 2013.

## **1.7 User Reliance**

This *report* is confidential and has been prepared for the exclusive use by Bryan Cave LLP. Weaver Boos also understands that this Phase I ESA was conducted to meet the environmental due diligence requirements of Hilco Real Estate Holdings, LLC and its affiliates (including, but not limited to, HRP Sparrows Point LLC). Bryan Cave LLP indicated that Hilco Real Estate Holdings, LLC and its affiliates may rely on the information contained in this *report* under the same terms and conditions to which Bryan Cave LLP has agreed.

No additional parties may use the information contained in this *report* without obtaining the written permission of Weaver Boos and Bryan Cave LLP. Weaver Boos' duties and obligations extend to Bryan Cave LLP and to no other party. Weaver Boos' duties and obligations to Bryan Cave LLP are not transferable to any person, corporation, or organization without the express written consent of Bryan Cave LLP and Weaver Boos.

This Phase I ESA *report* must be read and interpreted as a whole and can only be considered representative of the conditions of the Property as of the date of our *site reconnaissance* described herein. Weaver Boos makes no representation whatsoever concerning the condition of the Property beyond the date of our *site reconnaissance* described herein. Individual sections and appendices of this *report* are dependent on the balance of this *report*, and on the terms, conditions, and stipulations contained in the proposal, MSA, and any written amendments accepted by Weaver Boos.

## 2.0 SITE DESCRIPTION

### 2.1 Location and Legal Description

The Property is located at 1430 Sparrows Point Boulevard and 5111 North Point Boulevard in Sparrows Point, Maryland. The Property generally lies north of the Patapsco River, east of Bear Creek, south of Wire Mill Road, Grays Road and portions of Interstate-695, and west of Jones Creek, Old Road Bay and residential areas within the City of Edgemere (see **Figure 2 – Property Layout Map**). The Property consists of an approximately 3,100 acre peninsula bound by water to the west, south, and east. The approximate center of the Property is located at N39°13'47" latitude and W76°28'66" longitude in Baltimore County, Maryland (see **Figure 1 - Property Location Map**). The Property boundaries shown on **Figure 1** and **Figure 2** were drawn using documents provided by the *user* including a Site Operational Boundaries Map created by the Enviroanalytics Group dated December 2013, as well as the Former Bethlehem Steel Site Modified Consent Decree Regulated Areas figure by Environmental Operations, Inc. dated November 2012. It is Weaver Boos' understanding that an ALTA Survey is to be completed for the Property but has not been provided as of the date of this report. A copy of the site plan for the Property along with the Property legal descriptions are included in **Appendix B – User-Provided Information**.

### 2.2 Site and Vicinity General Characteristics

The Property consists of an approximately 3,100 acre parcel of land located on the Sparrows Point Peninsula in the Chesapeake Bay watershed. The site consists largely of the former Sparrows Point steel mill plant which was historically owned and operated by Bethlehem Steel Company. Two solid waste landfills identified as Coke Point landfill and Greys landfill are also included as part of the Property and accepted various wastes from the steel making portion of the Property. Along the eastern portions of the Property several non-industrial leased properties are present. The Property is zoned Manufacturing Heavy-Industrial Major (MH-IM). Surrounding property zoning classifications include the following: Manufacturing Light (ML), Resource Conservation (RC), Density Residential (DR), Business Roadside (BR), Business Major (BM), Business Local (BL), and Residential Office (RO). Light industrial and commercial properties are located northeast of the Property and northwest of the Property across Bear Creek. The residential area of Edgemere is located northeast of the Property across Jones Creek and Fort Howard to the southeast across Old Road Bay. Residential and commercial areas of Dundalk are located northwest of the Property across Bear Creek.

A review of the 1974 Sparrows Point, Maryland, 7.5-minute quadrangle topographic map published by the United States Geological Survey (USGS) suggests that the Property is at an elevation of approximately ten (10) to twenty (20) feet above mean sea level (msl) with an average elevation of about fifteen (15) feet msl.

### **2.3 Current Use of the Property**

The Property is currently an inactive former integrated steel making facility. The majority of the former structures have been removed with active demolition activities observed to be taking place on the Property during the *site visit*. The areas where buildings and facilities had been removed were observed to largely be vacant land with some debris piles and miscellaneous storage buildings still present during the *site visit*. However, Weaver Boos observed select facilities still in operation including but not limited to the Humphrey Creek Waste Water Treatment Plant (HCWWTP), Greys Landfill, a railroad repair shop, the plant garage, security building and various tenant spaces.

The HCWWTP is currently being used to treat discharges along the Tin Mill Canal (TMC) consisting mainly of stormwater. Greys Landfill is under intermittent joint operation by Sparrows Point LLC and MCM Management Corporation (MCM) to receive demolition debris (including asbestos-containing materials) generated at the Property and also to receive approximately thirty (30) tons of sludge filter cake generated each week by the HCWWTP. No active waste deposition was observed at the Greys Landfill during the *site visit*.

The Patapsco & Back Rivers Railroad (PBRR) shop facility was also observed to remain in operation for locomotive repair. The Billet Record Building was observed to be flagged with asbestos warnings for intermittent continued use by MCM for the processing of certain asbestos-containing building materials generated during on-going demolition operations. Lastly, the main security building was being utilized for administrative offices, and a garage building was being used for refueling and maintenance activities. These facilities appeared to be reasonably operated and maintained, with no obviously apparent visible releases of petroleum products or hazardous substances. Remaining facilities on the Property are occasionally operated as needed to support MCM's demolition activities including the Chrome Recovery Plant located along the TMC and several material and storage warehouses throughout the Property.

Several tenants also occupied the Property during the *site visit*. Lafarge, which operates in the southeast portion of the Property, manufactures cement additives and has operated on the Property since the 1970s. Fritz Enterprises, which operates in the southern portion of the Property, has run an iron recovery operation for approximately ten (10) years. Kinder Morgan,



which occupies portions of the southern end of the Property, operates as a terminal operator and bulk material handling facility that processes sand, slag, and gypsum. Kinder Morgan also manages scrap material and demolition bulk materials for Lafarge. In addition, MCM has been actively demolishing the former steel mill buildings located throughout the Property since late 2012 as discussed further in **Section 5.2**. Therefore, during the *site visit*, Weaver Boos observed select remaining buildings associated with former steel mill operations as discussed in more detail in **Section 5.0**. Other non-industrial tenants including the Pleasant Yacht Club, North Point Yacht Club, and the Baltimore County offices (fire department and Department of Public Works since 2001) are located on the eastern portion of the Property.

## **2.4 Historical Use of the Property**

Information contained in this section and following sections has been generated based on Weaver Boos review of historical reports discussed further in **Section 4.4.2**. Based on our review of these documents, industrial operations have occurred at the Property since 1887. According to our review of the historical documents provided as part of this Phase I ESA, Pennsylvania Steel built the first furnace at the Sparrows Point facility (the Property) in 1887 and the first iron was cast in 1889. In 1916, Bethlehem Steel Corporation (BSC) purchased the Sparrows Point facility and enlarged it with the addition of mills to produce hot rolled sheet, cold rolled sheet, galvanized sheet, tin mill products, and steel plate. During the peak production in 1959, the facility operated thirteen (13) coke oven batteries, ten (10) blast furnaces, and four open hearth furnaces. In general, various steel manufacturing operations and associated recovery systems, wastewater treatment systems, and solid waste disposal activities were conducted at the facility from 1887 to 2012 as discussed in further detail below.

Coke oven batteries were used to produce coke, which was a source of fuel in the iron-to-steel making process. A total of thirteen (13) coke oven batteries were operated from the 1930s until operation of the ovens ceased in December 1991. Demolition of coke oven batteries numbered seven and eight occurred during the 1980s. Demolition of coke oven batteries numbered one through six was completed in May 1991, batteries numbered nine and ten (10) were demolished by November 1993, and batteries A, eleven (11), and twelve (12) were demolished in the late 1990s.

Blast furnaces were used at the facility for the production of iron. Blast furnaces A through G and also K were demolished and removed from the Property during the time period from 1979 to 1985. At the time the Description of Current Conditions Report (DCC Report) was prepared in January 1998, only blast furnaces H, J, and L remained on site and only the L blast furnace was

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operational. The H and J furnaces had formerly operated as back-up furnaces during maintenance of the L furnace. During Weaver Boos' site visit only the L blast furnace was observed to be present on the Property but was not in operation. According to Mr. Bonnano, Environmental Manager for MCM, the demolition contractor for HRE Sparrows Point LLC, this blast furnace is slated for demolition. In addition, BSC formerly operated seven sinter strands as a means to charge the blast furnaces; however, only one was operational in 1998. Sinter is an agglomerated and fused mixture of fine-sized material such as iron ore, coke breeze, fluxstone, mill scale, and flue dust.

In 1998, steel was being produced in two basic oxygen furnaces (BOFs). Open Hearth Furnace Shops No. 1 through No. 4 were formerly used for steel production, however, were no longer in service. Based on observations during the *site visit*, the two BOFs currently remain on site but were partially demolished. Finished steel was produced at the Plate Mill, the Cold Sheet Mill, Hot Strip Mill, and the Tin Mill. In addition, the Rod and Wire Mill and the Pipe Mill produced rods, wire products, and pipes during the 1940s through the early 1980s.

In addition to the iron and steel manufacturing operations, BSC operated a coal chemical recovery system consisting of several plants. These plants included: A and B Coal Chemicals Plants (CCPs), Benzene and Litol Plants, Hydrogen Cyanide Strippers, as well as a Desulfurization Plant and Sulfur Recovery Plant. These plants were formerly used for treatment of raw coke oven gas. According to the 1998 DCC Report, the CCPs had been removed or were in the process of being removed at the time the report was prepared. The Benzene and Litol Plants were distillation and cracking plants for the purification of light oil. These plants operated from the late 1940s through 1986 and had been removed prior to 1998. The Hydrogen Cyanide strippers were used for removal of hydrogen cyanide from gas generated at the CCPs and had also been removed prior to 1998. The Desulfurization Plant and Sulfur Recovery Plant was used to remove sulfur from the coke oven gas and operated from the late 1960s through the late 1980s. Although not operational, a desulfurization unit was still in place in 1998. During the *site visit*, this unit was observed to have been demolished.

Other recovery systems that formerly operated at the facility included an Ammonia Recovery Plant, Green Pellet Plant, Ball Mill, Palm Oil Recovery, and Slag Reprocessing. Excess weak ammonia liquor from the CCPs was treated at the Ammonia Recovery Plant, which operated until the Coke Oven was shut down in 1991. Green iron ore pellets were manufactured from open hearth and BOF fume dust at the Green Pellet Plant, which was demolished in 1990. The pellets were then charged back into the furnaces. The Ball Mill, which operated until the 1980s,

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was used for processing coal tar and material from the tar decanter into a liquid for use as a fuel. The Palm Oil Recovery operation was historically operated by U.S. Filter and processed waste oils generated by BSC. The waste oil operations began around 1950. Slag generated at the Blast Furnace and the BOF was processed by crushing and screening on site by C.J. Langenfelder, Inc. and other contracted entities. The majority of the structures in the Coke Oven vicinity were observed to have been demolished during the *site visit*, with only some warehouses and storage buildings remaining.

Wastewater treatment systems that formerly operated or currently are operating at the facility included: Bio-Oxidation Plant, Blast Furnace/Sinter Plant Water Treatment System, BOF Water Treatment System, Chromium High Density Sludge (HDS) Plant, and the Tin Mill Canal and Humphrey Creek Wastewater Treatment Plant (WWTP). Wastewater from the Ammonia Removal Plant, the Benzene and Litol Plants, and the A CCP Hydrogen Cyanide Stripper was treated at the Bio-Oxidation Plant. Treated wastewater was discharged through point source location 121 and subsequently through National Pollutant Discharge Elimination System (NPDES) Outfall 021. The Blast Furnace/Sinter Plant Water Treatment System processed water from the Sinter Plant scrubbers and treated slurry from the Blast Furnace recycled water system for soluble zinc and cyanide. Dewatered sludge was disposed in Greys Landfill and the water was discharged through NPDES Outfall 101. The BOF Water Treatment System was a recycle system that treated water from the four BOF scrubbers. The solids were removed and disposed at Greys Landfill and excess water was treated at the HCWWTP and subsequently discharged at NPDES Outfall 014. The Chromium HDS Plant processed wastewater containing chromium generated during chromium plating and passivating operations at the Tin Mill. Treated water was sent to the HCWWTP. The TMC is a man-made canal constructed with slag fill and served as a conveyance for industrial wastewater discharged from several facilities. The eastern portion of the TMC began operating in the early 1950s and the western portion began operating in 1969. Treated wastewaters from the TMC are discharged through NPDES outfall 014 to Bear Creek.

Solid wastes were disposed primarily in the following three areas of the facility during its lifetime: Greys Landfill, Coke Point Landfill, and Humphrey Impoundment. Greys Landfill is a solid waste disposal area occupying approximately forty (40) acres in the northwest corner of the Property. Greys Landfill is surrounded by a slag berm and is divided into cells designated for specific wastes including sludges, centrifuge cakes, dusts, cleanup materials, and asbestos containing materials. Greys Landfill is still currently in operation, primarily accepting wastes resulting from MCM's ongoing demolition activities. Coke Point Landfill occupies approximately forty (40) acres in the southwest corner of the Property and has been used as a

landfill since 1971. Coke Point Landfill received non-hazardous waste including foundry dust, waste sand, slag, refractories, and various other dusts. The northern portion of the landfill received sweepings from the Coke Oven Area, which included coke ash. Coke Point Landfill is not currently in operation although it does have available permitted capacity. The Humphrey Impoundment occupies approximately forty-three (43) acres in the northwest portion of the Property. Between 1950 and 1970, Humphrey Creek received wastewater discharges from various steel processing areas including the Cold Sheet Mill, the Hot Strip Mill, the Tin Mill, and the Rod and Wire Mill. When the Tin Mill Canal was completed in 1969, these discharges were routed through the canal to the HCWWTP. Between 1970 and 1985, Humphrey Impoundment was used as a dewatering area for sludges generated at various on-site wastewater treatment plants. The HCWWTP is still in operation, primarily treating stormwater from the TMC as well as water collected from the groundwater pump and treat system currently in operation at the Rod and Wire Mill.

In October 2001, BSC filed for bankruptcy protection. The International Steel Group (ISG) subsequently purchased BSC on April 22, 2003. Mittal Steel acquired ISG on April 5, 2005 and on June 26, 2006, Mittal Steel merged with Arcelor, forming ArcelorMittal. On May 13, 2008, ISG merged with Severstal Sparrows Holding LLC and was renamed Severstal Sparrows Point, LLC (Severstal). On April 14, 2011, Severstal changed its name to RG Steel Sparrows Point, LLC (RG Steel). Steel manufacturing operations continued at the facility throughout this time period and ended in May 2012.

Iron and steelmaking operations were shut down in May 2012 and RG Steel filed for bankruptcy on June 4, 2012. The Property was put up for auction on August 7, 2012. On September 14, 2012, the above-grade assets and certain other improvements on the Property were sold in a joint venture to Sparrows Point LLC and HRE Sparrows Point LLC. In general, Sparrows Point LLC is the current *owner* of the Property, while HRE Sparrows Point LLC owns select above-grade assets of the Property. Throughout 2013 to the present day, HRE Sparrows Point LLC and its demolition contractor, MCM, have been demolishing the above-grade structures on the Property.

## **2.5 Description of Structures, Roads, and Other Site Improvements**

The Property peninsula has changed in size and shape over time due to the placement of slag materials generated from the steel mill activities into the surrounding waters. By January 1917, the BSC Sparrows Point facility consisted of approximately 2,166 acres of land. Humphrey Creek was present in the northern portion of the Property and drained reportedly fresh water to Bear Creek. A tributary to Humphrey Creek called Blockhouse Cove extended into the central

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part of the Property from the southern side of Humphrey Creek. Greys Creek was present to the north of Humphrey Creek. The Town of Sparrows Point was present in the south central portion of the Property and at one time housed over 1,000 people.

By April 1938 steel manufacturing operations, especially on the eastern portion of the Property, were established. Blockhouse Cove had been filled with slag with a bridge partially damming the opening to Bear Creek. A significant portion of the southern end of the Property had also been filled with slag. A small amount of land along the southern edge of the Property was filled between the late 1930s and the late 1950s. The northeast end of Humphrey Creek, two small tributaries to Jones Creek, and some land north of the current Shipyard were also filled and/or generated by that time. By 1971, all of the Humphrey Creek area had been filled, and the TMC had been constructed within the slag fill. In addition, Greys Creek and an additional area along the southern boundary of the Property had been slag filled resulting in a total land area of approximately 3,100 acres which exists to the present day.

Current structures with active operations as observed during the *site visit* are described in **Section 2.3**. Outside of these structures, the majority of the remaining structures are used for storage and/or are scheduled to be demolished. Following completion of demolition activities, only a set of storage warehouses in the northeast corner of the Property, the new Cold Mill located just east of the Rod and Wire Mill area in the northwest portion of the Property, and the current PBRR building are to remain. Several roads associated with the historical operations as well as those associated with the former Sparrows Point residential town located on the Property were still present at the time of the *site visit*. Many of these roads have active street lights and the utilities for the non-industrial buildings are scheduled to remain in place according to Mr. Russell Becker of Sparrows Point LLC, one of the Property's *key site managers*.

Buildings occupied by workers are currently heated using electric heaters and cooled using window-mounted air conditioning units. According to Mr. Becker, no boilers are currently used at the Property. The following utility services are provided to the Property:

- Electric service – provided by Baltimore Gas and Electric (BGE);
- Telephone service – provided by Verizon and AT&T;
- Natural gas service – None (formerly BGE);
- Potable water – provided by City of Baltimore;
- Sanitary service – provided by City of Baltimore and private septic systems; and

- Waste disposal services – provided by Cockey’s Enterprises, Inc.

The Property is largely served by the City of Baltimore for sanitary service; however, the tenant spaces are served via their respective septic tanks. Currently these include one 500-gallon aboveground septic tank and two underground septic tanks although two additional underground septic tanks are scheduled to be installed in the next few months according to Mr. Becker. These septic tanks are used for human wastes only and are pumped as needed.

General stormwater at the Property largely sheet flows; however, some stormwater is also managed via an internal storm sewer system which discharges to various outfalls (Finding 255 on **Table 1**). Water in industrial areas are collected and discharged to the TMC which leads to the HCWWTP for treatment prior to discharge through the HCWWTP outfall.

During the *site visit* at least two large electrical substations were observed along Bethlehem Boulevard on the northern portion of the Property and operated by BGE (Finding 259 on **Table 1**). The substations were observed at a distance by Weaver Boos, but appeared to be in good condition based on observations able to be made.

In general, decorative vegetation is present along the former office buildings but is largely unkempt. Natural vegetation is scattered throughout the Property with denser vegetation observed to be associated with low-lying potential wetland areas, reservoirs, or select impoundments.

Weaver Boos photographed select operations and improvements located on the Property to support this written *report*. Those photographs are included in **Appendix C - Photographic Documentation**.

## **2.6 Current Uses of the Adjoining Properties**

The Property is surrounded by the Patapsco River to the south, Bear Creek to the west, and Old Road Bay to the east. Adjoining properties to the north and northeast are primarily light industrial and residential. The following is a listing of the current adjoining properties including the applicable property name, address, operation, and direction from the Property.

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<b>CURRENT ADJOINING PROPERTIES</b>			
<b>Property Name/Occupant</b>	<b>Address</b>	<b>Operation/Use</b>	<b>Direction from the Property</b>
Sparrow's Point Country Club	919 Wise Avenue Baltimore, Maryland	Recreation	North
White Marsh Transport	2010 Reservoir Road Sparrow's Point, Maryland	Industrial/ Commercial	North
Dietrich Industries (vacant)	8911 Bethlehem Road Sparrow's Point, Maryland	Former Industrial/ Commercial	Northeast
AMG Resources	2415 Grays Road Dundalk, Maryland	Industrial/ Commercial	Northeast
Baltimore Packaging	2301 Grays Rd #2 Dundalk, Maryland	Industrial/ Commercial	Northeast
Venture Trailer	5301 North Point Boulevard Sparrows Point, Maryland	Industrial/ Commercial	Northeast
Millers Island Propeller, Inc.	2200 Sparrows Point Road Sparrows Point, Maryland	Industrial/ Commercial	Northeast
Multiple Residential/Small Commercial Properties	Along North Point Boulevard Sparrows Point, Maryland and Various Streets in Edgemere, Maryland	Residential/ Commercial	Northeast
Old Road Bay	Waterway	Waterway	East
Sparrows Point Channel/Patapsco River	Waterway	Waterway	South
Sparrows Point Shipyard Industrial Complex	600 Shipyard Road Sparrows Point, Maryland	Commercial / Shipyard	West
Bear Creek	Waterway	Waterway	West

Weaver Boos photographed numerous sites, operations, and improvements located at or near the Property to support this written *report*. Select photographs used to illustrate the general Property conditions and select Findings and *recognized environmental conditions* are included in

**Appendix C – Photographic Documentation.** Due to the size of the Property, multiple adjoining properties are present. The adjoining properties include industrial operations that are listed on multiple databases. These properties, including names and addresses, are discussed further in **Section 4.1.1.**



### **3.0 USER-PROVIDED INFORMATION**

ASTM E 1527-13 provides that certain Phase I ESA tasks are to be performed by the *user*. According to ASTM E 1527-13, these tasks should be performed by or on behalf of the party seeking to qualify for a Landowner Liability Protection (LLP) to CERCLA Liability. While such information is not required to be provided to the environmental professional, the environmental professional shall request that the *user* provide the results of these tasks as such information can assist the environmental professional in identifying *recognized environmental conditions* in connection with the Property.

Weaver Boos provided the *user* with a questionnaire as part of the Phase I ESA process to assist them with these tasks. A copy of the User-Provided Information Questionnaire is included in **Appendix B – User-Provided Information**. **Table 3** presents a summary of the documents provided by the *user*. Select documents pertaining to the description of the Property provided by the *user* such as surveys, Property use maps, and other non-environmental related documentation are included in **Appendix B**. Select historical environmental reports provided by the *user* are included as part of **Appendix F - Historical Records Documentation**. In instances where the *user* did not provide the information requested, Weaver Boos has opined on the significance of the absence of this information as per ASTM E 1527-13. The following sections describe our review of the responses received, where applicable.

#### **3.1 Recorded Land Title Records**

To meet the requirements of ASTM E 1527-13 and “all appropriate inquiries”, a search for the existence of *environmental liens* and *activity and use limitations* must be conducted. The *user* informed Weaver Boos that it is aware of no *environmental liens* or *activity and use limitations* with respect to the Property other than those provided in title commitment documents located in **Appendix B – User-Provided Information**. Based on our review of this title commitment document, no information regarding *environmental liens* or *activity and use limitations* with respect to the Property are provided. However, the document does outline ninety-two (92) “special exceptions” which generally pertain to the Consent Decree (further discussed in **Section 4.4.2**), tenant rights, right of way use for various roads, utilities, and companies, a reservation of underground water rights, easements for sanitary sewers and other roads and utilities, floodplain/riparian areas, mineral rights, a holding tank agreement between BSC and the MDE, a right of entry agreement between BSC and the MDE, and other general use and access deed agreements and restrictions. A full Property legal description is also included in the document.

### **3.2 Environmental Liens or Activity and Use Limitations**

As mentioned within **Section 3.1**, to meet the requirements of ASTM E 1527-13 and “all appropriate inquiries”, a search for the existence of *environmental liens* and *activity and use limitations* must be conducted. The *user* informed Weaver Boos that it is aware of no *environmental liens* or *activity and use limitations* with respect to the Property other than those provided in title commitment documents located in **Appendix B – User-Provided Information**.

### **3.3 Specialized Knowledge**

The *user* provided Weaver Boos with numerous historical reports with respect to the Property as further discussed in **Section 4.4.2**.

### **3.4 Commonly Known or Reasonably Ascertainable Information**

The *user* provided Weaver Boos with commonly known or *reasonably ascertainable* information with respect to the Property as further discussed in **Section 4.4.2**.

### **3.5 Valuation Reduction for Environmental Issues**

The *user* informed Weaver Boos that to their knowledge, the value of the Property has not been reduced due to environmental issues, although known environmental issues are present due to the former steelmaking operations conducted on the Property.

### **3.6 Owner, Property Manager, and Occupant Information**

The *user* informed Weaver Boos that the Property *owner* is Sparrows Point LLC and that the Property manager is Mr. Russell Becker of Sparrows Point LLC. Mr. Brandon Bonnano and Mr. Mike Vogler of MCM were also identified as persons of knowledge with respect to the Property being that MCM is currently conducting active demolition activities of the former steel mill structures present at the Property. In general, the Property is currently unoccupied, except for select active tenants that include Lafarge, Kinder Morgan, Fritz Enterprises, two yacht clubs, and Baltimore County.

### **3.7 Reason for Performing Phase I ESA**

The *user* requested that Weaver Boos perform this Phase I ESA in support of its environmental due diligence efforts associated with the potential purchase of the Property.

**3.8 Obvious Indicators of the Presence or Likely Presence of Contamination of the Property**

The *user* informed Weaver Boos that it is aware of obvious indicators of the presence or likely presence of contamination of the Property as provided in documents further discussed in **Section 4.4.2.**

**3.9 Other Information Relevant to the Property**

The *user* stated to Weaver Boos that it is aware of no other information relevant to the Property beyond the information already provided as part of the Phase I ESA.

## 4.0 RECORDS REVIEW

### 4.1 Standard Environmental Record Sources

According to ASTM E 1527-13, the purpose of reviewing regulatory records is to obtain and review records that will help identify *recognized environmental conditions* in connection with the Property. In addition, some records to be reviewed pertain not only to the Property, but also to properties within an additional ‘*approximate minimum search distance*’ in order to help assess the likelihood of problems from migrating *hazardous substances* or *petroleum products*. When the term ‘*approximate minimum search distance*’ includes areas outside the Property, it shall be measured from the nearest Property boundary. The term ‘*approximate minimum search distance*’ is used in lieu of the term ‘radius’ in order to include irregularly-shaped properties.

Weaver Boos retained Historical Information Gatherers, Inc. (HIG) of Hopkins, Minnesota to provide an ASTM radius map report for this Property. HIG provided Weaver Boos a Database Report prepared by Environmental Risk Information Service (ERIS). The ERIS’ Database Report (ERIS Report) is a computerized search of select state and federal environmental databases that identify various properties with a record of environmental activity. Weaver Boos reviewed the ERIS Report and summarized the relevant listings in the following sections. A copy of the compiled ERIS Report has been included as **Appendix D - Regulatory Documentation**.

Listings in the ERIS Report discussed below meeting the following criteria are identified as Findings as indicated in their descriptions in **Section 4.1.1** and **4.1.2**:

- Listings in environmental databases that may result in a high probability of on-site impact to the Property such as non-*de minimis* spill quantities in excess of 100 gallons to land or water, and/or listings without documented cleanup or closure.
- Adjoining facilities listed in environmental databases of the presumed hydraulic upgradient boundary of the Property based on distance, local topography, rivers, low-spots and adjoining property structures (if present), which may likely result in on-site impact to the Property.

Facilities listed with database information that does not appear to present a threat to the Property including, but not limited to, air permits, general site summary listings, No Further Action (NFA)/No Further Remediation (NFR) sites, or “no violations reported” status properties were generally not identified as Findings.

#### *4.1.1 Summary of Database Listings*

According to the ERIS Report, multiple locations on the Property are listed in various databases. The following summarizes select information presented within the ERIS Report. If additional details are included from other aspects of the Phase I ESA, they are noted below.

The following lists the various ERIS database listings for the Property:

- Patapsco & Back Rivers RR Co. located at North Point Boulevard and 7<sup>th</sup> Street is listed on the Resource Conservation and Recovery Act (RCRA) Non-Generators (NonGen) database. The facility is listed as a Conditionally Exempt Small Quantity Generator for generating ignitable and corrosive wastes as well as certain halogenated solvents. No violations were reported.
- RG Steel - Sparrows Point LLC located at 1430 Sparrows Point Boulevard is listed on the Aboveground Storage Tank (AST) database with 121 tanks containing motor oil, paradene, heating oil, hydraulic oil, lubricating oil, used oil, kerosene, diesel fuel, gasoline, and transmission oil. A discussion of select ASTs currently or formerly located on the Property that have been identified as Findings is shown in **Table 1** with additional select Findings further discussed in **Section 9.0**. This address is also listed on the Emergency Response Notification System (ERNS) database for four incidents, three of which had been cleaned and one of which was to the Patapsco River with no cleanup details provided.

This address is also listed on the RCRA Corrective Action (CORRACTS), RCRA Generator (Gen), and RCRA Treatment, Storage, and Disposal (TSD) databases as a Large Quantity Generator (LQG) for iron and steel mills, petroleum and coal products manufacturing, roofing, sidings, and sheet metal contractors. It is listed for producing ignitable waste, corrosive waste, barium, cadmium, chromium, lead, mercury, halogenated solvents, non-halogenated solvents, wastewater treatment sludges, cyanide plating bath solutions from electroplating operations, ammonia still lime sludge from coking operations, spent pickle liquor from steel finishing operations of plants that produce iron or steel, decanter tank tar sludge from coking operations, benzene, hydrofluoric acid, hydrogen fluoride, ethene, trichloro or tetrachloroethylene, methyl, toluene, ethane, 1,1,1-trichloro (or) methyl chlorform, ethane, dimethyl-(I,T,) or xylene (I), and methyl ethyl ketone. Multiple violations have been reported between 1986 and 2011 as provided in the ERIS report. The Property is currently under a RCRA Consent Decree as further discussed in **Section 4.4.2**.

The 1430 Sparrows Point Boulevard address is also listed on the AST database under the name Phoenix Services LLC and Kinder Morgan Chesapeake Bulk for five ASTs containing diesel fuel, used oil, gasoline, and oil/water and eight ASTs containing diesel fuel, hydraulic oil, transmission oil, and gear oil, respectively. Select ASTs have been identified as Findings as shown on **Table 1**. It is unknown if these ASTs are associated with the 121 ASTs previously discussed.

This address is also listed on the Underground Storage Tank (UST) and Oil Control Program (OCP) database under the name Severstal Sparrows Point LLC. Under case number 09-0005BA, a cleanup was completed and closed on October 2008. Under case number 11-0344BA, an additional cleanup was completed and closed on May 2012. There are eighteen (18) USTs listed as permanently out of use. These USTs included heating oil, gasoline, diesel, a designation of “other”, and used oil. USTs on the Property are further discussed in **Section 5.3.2.1**.

- Bethlehem Steel at 5111 North Point Boulevard is listed on the ERNS database for forty-seven (47) spill incidents. In each case the materials are reported to have been less than 100 gallons and/or contained and cleaned (i.e. *de minimis*) except for the following:
  - A continuous release of an unknown amount of hydrogen cyanide in December 1997. No cleanup details are provided, however based on the nature of the constituents the releases were likely to the air. .
  - A continuous release of unknown amounts of nitrogen oxide, sulfur dioxide, nitrogen dioxide, and benzene in June 2000. No information regarding cleanup was provided, however based on the nature of the constituents the releases were likely to the air.

This address is also listed in the OCP database under the name ISG Sparrows Point Inc for case number 04-2167BA4, which was opened in June 2004 and then cancelled. The address is listed again on the OCP database under the name ISG Sparrows Point Plant Garage for case number 04-2134BA4, which was opened in June 2004 and closed September 2004. Finally, this address is also listed in the RCRA NonGen database under the name Kroff Chemical Co Inc as a former commercial and service industry machinery manufacturing facility.

- Balto County Pump Station located at 1215 Pennwood Road is listed on the OCP database for an incident that was closed in March of 2000.

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- 2001 Wharf Road is listed as Lafarge Building Materials Inc. on the RCRA Gen database for generating spent halogenated solvents, ignitable waste, and corrosive waste. No violations are reported. Finally, this address is also listed in the UST database under the name Sparrows Point Plant for a 12,000-gallon diesel UST and a 10,000-gallon mixture UST. USTs on the Property are further discussed in **Section 5.3.2.1**.
- Pleasant Yacht Club located at 1800 Wharf Road is listed on the ERNS database for a release of an unknown amount of oil into the Old Road Bay in March 2012. This address is also listed on the ERNS database for a release of an unknown amount of diesel oil in March 2010 due to a fishing boat which sunk and was leaking diesel fuel (part of Finding 276 as shown on **Table 1**). No details regarding cleanup were listed.
- Maintenance of Way Tie Yard located at Sparrows Point Boulevard and Wharf Road is listed on the UST database with a 12,000-gallon gasoline UST listed as permanently out of use.
- Lafarge Building Materials located at 950 Wharf Road Gate 15B is listed on the AST database with nine ASTs that include motor oil, used oil, transmission oil, diesel fuel, gasoline, and gear oil (Finding 261 on **Table 1**). This address is also listed as Blue Circle Concrete and is listed on the OCP database for case number 97-1093BA4, indicating a release that was closed in January 1997.
- The Nelson Company located at 2116 Sparrows Point Road is listed on the OCP and UST databases. The facility is listed on the OCP database for a release in September 1999 that was closed in August 2004 following cleanup. The facility is listed on the UST database for three USTs of diesel and gasoline that are listed as permanently out of use. USTs on the Property are further discussed in **Section 5.3.2.1**.
- Bethlehem Steel/MD Slag/Arundel Corp located at Wharf and Canal Roads is listed on the OCP database for case number 93-2298BA4. This incident was opened in April 1993 and closed in May 1993. This address is also listed in the OCP database under the name Arundel Corp for case number 8-0014BA4. This release was opened in July 1987 and closed March 1997. Finally, this address is also listed in the OCP database under the names Bethlehem Steel/AA Corp/MD Slag Co. for case number 7-2086BA. This incident was opened in June 1987 and closed May 1993.
- Air Products & Chemicals Inc (Air Products), located at 2005 Reservoir Road, is listed on the RCRA Gen database as a conditionally exempt small quantity generator of lead,

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benzene, tetrachloroethylene, and trichlorethylene. No violations are reported. This facility is also listed on the ERNS database for four anhydrous ammonia leaks to the air.

- Maryland Department of Transportation Sparrows Point located at MD Route 157 (Peninsula Boulevard) is listed on the SHWS database. No further details are provided, however it appears this listing may be associated with hazardous waste cell previously closed at Greys Landfill based on the location description.

Weaver Boos does not believe that historical and current operations and database listings present on the Property represent Findings with respect to the Property unless stated otherwise and shown on **Table 1** with select Findings further discussed in **Section 9.0**.

The ERIS Report identified various adjoining properties on certain government databases as follows:

- Dietrich Industries Inc. located at 8911 Bethlehem Boulevard (northeast adjoining property) is listed on the OCP, RCRA Gen, and UST databases. The facility is listed on the OCP database for the following incidents: case number 93-1943BA4 opened in April 1993 and closed in April 1993, case number 7-0418BA opened in August 1986 and closed in October 1986, and case number 06-0481BA2 opened in December 2005 and closed in February 2006. The facility is also listed on the RCRA Gen database as a conditionally exempt small quantity generator of ignitable waste. Finally, the facility is listed on the UST database for two USTs of gasoline and an unknown listed as permanently out of use. These USTs have been identified as part of Finding 281 as shown on **Table 1** and discussed further in **Section 9.0**.
- American National Can Company located at 2010 Reservoir Road (northern adjoining property) is listed on the OCP and UST databases. The facility is listed on the OCP database under case number 92-1684BA4, which was opened in January 1992 and closed in April 1993. The facility is also listed on the UST database for seven USTs of unknown materials listed as permanently out of use. These USTs have been identified as part of Finding 281 as shown on **Table 1** and discussed further in **Section 9.0**.
- Kiel's Auto Repair located at 4700 North Point Road (adjoining approximately 85 feet northeast of the Property across North Point Boulevard) is listed on the OCP database with case number 10-0620BA that was opened May 2010 and remains open. This listing has been identified as part of Finding 283 as shown on **Table 1** and discussed further in



**Section 9.0.** It also is listed under case number 9-1305BA that was opened February 1989 and closed May 1989.

- Greiff Brothers Corporation located at 2500 Grays Road (northern adjoining property) is listed on ERNS, OCP, RCRA NonGen, and UST databases. The facility is listed in the OCP database under three case numbers. Case number 90-0201BA4 was opened on August 2, 1989 and closed on November 3, 1993 with a registration number of 5745. Case number 91-1850BA4 was opened on March 25, 1991 and closed on April 16, 1991 with a release indicated. Case number 08-0425BA was opened on January 7, 2008 and closed on January 9, 2009 although a release was not indicated and therefore cleanup was not performed. The facility is listed on the RCRA NonGen database for previously generating ignitable waste with violations reported. The facility is also listed on the UST database with one 10,000-gallon diesel UST and one 4,000-gallon diesel UST listed as permanently out of use. These USTs have been identified as part of Finding 281 as shown on **Table 1** and discussed further in **Section 9.0**.
- Doug's Truck & Auto located at 2111 Sparrow Point Road (eastern adjoining property) is listed on the OCP database for case number 09-0676BA. The incident was opened in May 2009 and closed June of 2011 following cleanup.
- AMG Resources Corporation located at 2415 Grays Road (northern adjoining property) is listed on the AST, OCP, and RCRA Gen databases. The facility is listed on the AST database for five ASTs of heating oil, diesel fuel, hydraulic oil, and waste oil. The facility is listed on the OCP database for case number 95-0089BA4 opened in July 1994 and closed in December 1994 and for case number 90-0200BA4 opened in August 1989 and closed July 1998. The facility is listed on the RCRA Gen database as a large quantity generator of corrosive waste and lead associated with secondary smelting, refining, and alloying of nonferrous metal (except copper and aluminum). Violations were reported in December 1987 with compliance achieved in April 1988, and in May 2006 with compliance achieved in June 2006. Several moderately large ASTs were observed during the *site visit* at the adjoining AMG Resources facility. AMG Resources is a processor and marketer of ferrous & non-ferrous scrap metal and a supplier of prime and secondary steel products according to its website.

The address is also listed on the CERCLIS, CERCLIS NFRAP, OCP, SHWS, and UST databases under the name Vulcan Materials Division. The site is listed on the CERCLIS database as an archive site in April 1990. The site is listed on the OCP database with

case number 6-0497BA, which was opened and closed in December 1985. The site is listed on the SHWS database with no further information provided. The site is listed on the UST database with four USTs of heating oil listed as permanently out of use. The UST and SHWS listings have been identified as part of Finding 281 and Finding 284, respectively, as shown on **Table 1** and discussed further in **Section 9.0**. Finally, the 2415 Grays Road address is listed on the ERNS database for a release of 103 gallons of fuel oil into the soil in August 1996 which was cleaned up via a vacuum truck.

- Voest Alpine located at 4611 North Point Boulevard (northern adjoining property) is listed on the OCP database for case number 92-2725BA4 which was open and closed in August 1991. The address is also listed on the RCRA Gen database under the name Siemens Industry Inc. for being a small quantity generator of chromium, lead, tetrachloroethylene, trichloroethylene, ignitable waste, and benzene. Multiple violations were reported for this site in July 2005 and compliance was achieved the same month.
- Harris & Sons Steel Company located at 4640 North Point Boulevard (adjoining approximately 50 feet northeast of the Property across North Point Boulevard) is listed on the OCP database for case number 9-1306BA4 with an open date of February 1989 and a closed date October 2007. The release was reportedly cleaned up. The address is also listed on the RCRA Gen database under the name GC Zarnas & Co Inc MD. The site is listed as a conditionally exempt small quantity generator of ignitable waste. No violations were reported for this site.

Sparrows Point Shipyard located at 600 Shipyard Road (western adjoining property – Finding 285 in **Table 1**) is listed on the AST database for eight ASTs containing heating oil, gasoline, diesel fuel, and oil/water. This address is also listed on the ERNS database for seventeen (17) spill incidents. In each case the materials are reported to have been less than 100 gallons and/or contained and cleaned.

The 600 Shipyard Road address is also listed in the RCRA Gen database under the names Phoenix Services LLC, MP Industrial Coatings Inc, and BB Metals Enterprises Inc. The facility is listed as a conditionally exempt small quantity generator of tetrachloroethylene, ignitable waste, and lead. It is also listed as a small quantity generator of ignitable waste, corrosive waste, cadmium, lead, mercury, and spent nonhalogenated solvents. The address is also listed in the SHWS database under the name Bethlehem Steel Shipyard. No further information is provided. Finally, the address is also listed in the SHWS and

Voluntary Cleanup Program (VCP) databases under the name Sparrows Point Shipyard LLC.

Weaver Boos does not believe that historical and current operations and database listings present on the adjoining properties listed above represent Findings with respect to the Property unless stated otherwise and shown on **Table 1** with select Findings further discussed in **Section 9.0**.

The ERIS Report also identified various surrounding properties on certain government databases. Eleven (11) surrounding properties were identified within an eighth of a mile of the Property and were listed in databases including but not limited to RCRA, OCP, UST, and ERNS. Based on our review of the information provided, due to the presence of roads, structures, underground utilities, waterways, the distances from the Property, and/or Weaver Boos' observations during our *site visit*, Weaver Boos does not believe any of the reported database listings for surrounding properties represent a Finding in connection to the Property.

#### *4.1.2 Unplottable Sites*

The ERIS Report includes a section addressing “unplottable sites.” Unplottable sites are sites, which due to incomplete geographic location data or incomplete or incorrect address information cannot be plotted correctly. The ERIS Report listed 150 unplottable sites in vicinity of the Property, as well as the specific databases in which they are listed. Weaver Boos used at least two online mapping tools to locate the unplottable sites listed within the ERIS Report. Based on our use of the mapping tools, Weaver Boos identified ninety-five (95) listings on the Property and forty-three (43) listings on adjoining properties.

The following presents information on select database listings for unplottable sites that were found to be on the Property which have been identified as Findings as per the criteria previously discussed in **Section 4.1**:

- Sparrows Point Plant is listed on the ERNS database for the seven spill incidents, which were reported to have been less than 100 gallons and/or contained and cleaned except for the following:
  - A release of 1,000 gallons of sulfuric acid onto the land in October 1991. No details regarding cleanup were provided. Therefore, this spill has been identified as part of Finding 276 as shown on **Table 1** and discussed further in **Section 9.0**.
  - A release of 500 gallons of wash oil into an outfall of the Patapsco River in October of 1991. The material is listed as being contained by a dam at the facility outfall but no cleanup details were provided. Therefore, this spill has been

identified as part of Finding 276 as shown on **Table 1** and discussed further in **Section 9.0**.

- Sparrows Point is listed on the ERNS database for the thirteen (13) incidents, which were reported to have been less than 100 gallons and/or contained and cleaned except for the following:
  - A release of an unknown amount of an unknown material into Bear Creek in May 1995. A resident complained that a red substance was leaking into Bear Creek and potentially killing wildlife near her house. No cleanup details were provided. Therefore, this spill has been identified as part of Finding 276 as shown on **Table 1** and discussed further in **Section 9.0**.
  - A release of an unknown amount of an unknown oil into Jones Creek in October 1994. No cleanup details were provided. Therefore, this spill has been identified as part of Finding 276 as shown on **Table 1** and discussed further in **Section 9.0**.
  - A release of an unknown amount of an unknown oil into the Patapsco River in November 2008 near a vessel. No cleanup details were provided. Therefore, this spill has been identified as part of Finding 276 as shown on **Table 1** and discussed further in **Section 9.0**.
  - A release of an unknown amount of unknown oil at the Gallipos Lock to Jones Creek in March 1990. Therefore, this spill has been identified as part of Finding 276 as shown on **Table 1** and discussed further in **Section 9.0**.
- Sparrows Point Ore Pier is listed on the ERNS database for three incidents which were cleaned up except for one release of an unknown amount of an unknown oil into the Chesapeake Bay in October 1996. No cleanup details were provided. Therefore, this spill has been identified as part of Finding 276 as shown on Table 1 and discussed further in **Section 9.0**.
- Route 151 Sparrows Point is listed on the ERNS database for ten (10) incidents. In each case the materials are reported to have been less than 100 gallons and/or contained and cleaned.
- Pennwood Wharf Road Company Dock is listed on the ERNS database for three incidents. In each case the materials are reported to have been less than 100 gallons and/or contained and cleaned.

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- North Point Road, Sparrows Point is listed on the HMIRS database for five incidents which were cleaned except for one spill of miscellaneous hazardous material in May 1995. No cleanup details were provided. Therefore, this spill has been identified as part of Finding 276 as shown on **Table 1** and discussed further in **Section 9.0**.

The facility is also listed on the ERNS database for five incidents. In each case the materials are reported to have been less than 100 gallons and/or contained and cleaned except for one release of 500 gallons of sulfuric acid into the Patapsco River in May 1991. No cleanup details were provided. Therefore, this spill has been identified as part of Finding 276 as shown on **Table 1** and discussed further in **Section 9.0**.

- Bethlehem Steel is listed on the ERNS under varying addresses for six incidents which were cleaned except for one release of an unknown amount of an unknown oil into the Chesapeake Bay in August 1993. No cleanup details were provided. Therefore, this spill has been identified as part of Finding 276 as shown on **Table 1** and discussed further in **Section 9.0**. Bethlehem Steel Corp is listed on the OCP database for two closed incidents with no cleanup details available.
- Bethlehem Steel Pennwood Power Plant is listed on the OCP database for three closed incidents with no cleanup details available.
- Blue Circle Cement on Pennwood Wharf Road is listed on the OCP database for the three closed incidents with no cleanup details available.
- Sparrows Point locations are listed on the ERNS from 1987 to 1989 database with seven incidents and no cleanup details provided as follows:
  - A spill in April 1989 into a containment basin.
  - A spill in December 1987 into an outfall.
  - A spill in January 1989 at the Bethlehem Marine Facility.
  - A spill in February 1989 into a containment basin.
  - A spill in January 1989 into an outfall and the Patapsco River.
  - A spill in July 1989 into the Bethlehem Steel Shipyard. Please note that the shipyard is no longer part of the Property and is considered the western adjoining property.
  - A spill in September 1988 at the Bethlehem Pier into the Patapsco River.

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These spills have been identified as part of Finding 276 as shown on **Table 1** and discussed further in **Section 9.0**.

- Bethlehem Road at Sparrows Point is listed on the HMIRS database for a spill of corrosive material in June 1997. No cleanup details were provided. This spill has been identified as part of Finding 276 as shown on **Table 1** and discussed further in **Section 9.0**.
- A surface spill located at Sparrows Point sump area is listed on the OCP database with case number 00-1861BA4. The case was opened in May 2000 and closed in August 2000.
- Patapsco & Baltimore Railroad located at Bethlehem Steel is listed on the OCP database for case number 94-1297BA4. The case was opened in October 1993 and closed in November 1993. It is also listed on the OCP database for case number 94-1297BA4, which was opened in October 1993 and closed in November 1993. No cleanup details were provided.
- Arundel Corp located at Canal Road is listed on the OCP database for case number 99-0629BA4. The case was opened in September 1998 and closed in April 2000.
- Bethlehem Steel/Concrete/Arundel Corp located at Canal Road is listed on the OCP database for case number 8-0876BA. The case was opened in November 1987 and closed in May 1989. No cleanup details were provided.
- Bethlehem Steel located at Central Warehouse East is listed on the OCP database for case number 7-1033BA4. The case opened in December 1986 and closed in January 1995. No cleanup details were provided.
- IA Construction located at Wharf Road is listed on the OCP database for case number 8-0186BA. The case opened in July 1987 and closed March 1988. No cleanup details were provided. The site is also listed on the RCRA Gen database as a conditionally exempt small quantity generator of ignitable waste and spent halogenated solvents. No violations were reported. This facility is also listed on the UST database for three USTs filled with gasoline and kerosene. These USTs are listed as permanently out of use. USTs on the Property are further discussed in **Section 5.3.2.1**. US Filter Recovery Services at Gate G on Bethlehem Boulevard is listed on the RCRA NonGen database as a former large quantity generator of cadmium, chromium, lead, mercury, spent halogenated solvents, spent nonhalogenated solvents, wastewater treatment sludges from electroplating

operations, spent cyanide plating bath solutions from electroplating operations, plating bath residues from the bottom of plating baths, decanter tank tar sludge from coking operations, corrosive waste, and benzene. No violations are reported.

- Blumenthal-Kahn Electric located at Sparrows Point Office is listed on the UST database for four USTs filled with gasoline and diesel all listed as permanently out of use. USTs on the Property are further discussed in **Section 5.3.2.1**.
- Sparrows Point Concrete Plant located at Canal Road is listed on the UST database for two USTs filled with diesel and heating oil both listed as permanently out of use. USTs on the Property are further discussed in **Section 5.3.2.1**.
- Bethlehem Steel Corporation located at Sparrows Point Yard is listed on the UST database for two 1,200-gallon diesel USTs listed as permanently out of use. USTs on the Property are further discussed in **Section 5.3.2.1**.

The following presents the select information regarding database listings for unplottable sites that were found to be on adjoining properties:

- Sparrows Point Shipyard is listed on the ERNS database for thirty-six (36) incidents. In each case the materials are reported to have been less than 100 gallons and/or contained and cleaned. This facility is also listed on the OCP database for case number 93-1824BA4. The case was opened in March 1993 and closed in August 1995. It is also listed for case number 93-1458BA4, which was opened and closed in January 1993. No further information is available for these listings.
- Dietrich Industries located on Bethlehem Boulevard is listed on the OCP database for case number 99-2371BA4. The case was opened in March 1999 and closed in June 1999.
- H.S. Processing Co. located at 4504 Grays Road is listed on the RCRA NonGen database as a former large quantity generator of spent pickle liquor from steel finishing operations. No violations were reported.
- Boise Cascade Composite Can Division located at Bethlehem Boulevard is listed on the RCRA NonGen database as a former large quantity generator of ignitable waste. No violations were reported.
- Thompson Steel Company Inc located at North Point Blvd in Sparrows Point is listed on the CERCLIS and CERCLIS NFRAP databases as an archive site in January 1996. Thompson Steel Company Inc, is also listed on the RCRA CORRACTS and RCRA Gen

databases as a conditionally exempt small quantity generator for spent pickle liquor from steel finishing operations. No violations were reported.

- Zarnas, G.C. & Co. located at Sparrows Point Road is listed on the RCRA Gen database as a small quantity generator of ignitable waste, corrosive waste, chromium, and lead. No violations were reported.
- U.S. DOT Maritime Administration located at Bethlehem Shipyard is listed on the RCRA NonGen database as a former large quantity generator. No violations were reported.
- Sparrows Point Road toward Bethlehem Steel is listed on the ERNS database for a release of an unknown amount of creosote into the Chesapeake Bay in October 1994. No cleanup details were provided. Therefore, this spill has been identified as part of Finding 282 as shown on **Table 1** and discussed further in **Section 9.0**.
- A facility on Sparrows Point Boulevard is listed on the ERNS database for a release of an unknown amount of an unknown material into Bear Creek in November 1996. No cleanup details were provided. Therefore, this spill has been identified as part of Finding 282 as shown on **Table 1** and discussed further in **Section 9.0**.

The ERIS Report identifies the Property and various adjoining properties on certain government databases. Of those identified properties, Weaver Boos believes that the industrial activities on the Property and certain adjoining properties represent Findings in connection with the Property as shown in **Table 1** and as further discussed in the **Section 9.0**.

#### *4.1.3 Vapor Encroachment Screen*

Weaver Boos conducted a Tier 1 Vapor Encroachment Screen (VES) as defined in the ASTM E 2600-10 Standard (Standard) as part of this Phase I ESA. This included a review of potential vapor encroachment sources through information provided by the HIG Report, historical records, and observations made during our *site visit*.

The Property is listed on the ERNS, OCP, RCRA NonGen, HMIRS, AST, RCRA CORRACTS, RCRA Gen, RCRA TSD, UST, SHWS, CERCLIS, and CERCLIS NFRAP databases for numerous releases and for the presence of various chemicals of concern on the Property. In addition, as discussed in detail throughout this report, the Property has an extensive industrial history resulting in known subsurface impacts to soils and groundwater. Based on the historical documents reviewed as part of this Phase I ESA, known groundwater impacts of volatile chemicals currently exist on the Property including, but not limited to, dissolved benzene, toluene and naphthalene. Therefore, based on our review of available information and in



accordance with the Standard, Weaver Boos has identified these above listings and groundwater plumes to be vapor encroachment conditions (VECs) in connection with the Property.

In addition, based on our review of available information and in accordance with the Standard, Weaver Boos has also identified potential VECs in connection with the Property associated with select adjoining properties. However, large water bodies are present to the west, south, and east of the Property thereby excluding those facilities from consideration as vapors would not migrate across the water bodies to the Property. Weaver Boos identified fifteen (15) locations and facilities to the northeast within a third of a mile of the Property on the following applicable databases: ERNS, OCP, RCRA NonGen, AST, VCP, RCRA Gen, UST, SHWS, CERCLIS, and CERCLIS NFRAP. Weaver Boos also identified the western adjoining shipyard on numerous applicable databases. Other properties located within approximately 500 feet of the Property including but not limited to Dietrich Industries, Inc., American National Can Company, Kiel's Auto Repair, Greiff Brothers Corporation, Merritt, Doug's Truck and Auto, AMG Resources Corporation, Harris and Sons Steel Company, Sparrows Point Shipyard, Voest Alpine were also listed on various applicable databases. These facilities were discussed further in **Section 4.1.1** and **Section 4.1.2**.

The adjoining and surrounding properties listed above are within the approximate minimum search distances of the Property and have documented use of petroleum hydrocarbon chemicals and/or chemicals of concern. Therefore, these above facilities have also been identified as VECs in connection with the Property.

#### **4.2 Additional Environmental Record Sources**

Weaver Boos obtained and reviewed published, *reasonably ascertainable* information concerning the Property. Weaver Boos obtained that information from the following sources:

- Records on file at the Baltimore County Fire Department;
- Records on file at the Maryland Department of the Environment (MDE);
- Records on file at the United States Environmental Protection Agency (USEPA);
- Records on file at the Baltimore County Department of Permits Approvals and Inspections;
- Records on file at the Baltimore County Department of Health; and
- Records on file at the Baltimore County Department of Environmental Protection and Sustainability.

Due to the large volume of documents provided by the above agencies, and/or the format in which they were received, select documents have been excluded from **Appendix E – Environmental Records and Interview Documentation** but can be provided upon request. The following sections summarize our review of the records provided.

#### *4.2.1 Baltimore County Fire Department Records Review*

Weaver Boos submitted a FOIA request to the Baltimore County Fire Department on January 28, 2014 regarding records of hazardous material incidents, USTs or other potential environmental concerns on the Property. According to a FOIA response from the Baltimore County Fire Department received on February 11, 2014, no records are on file for the Property. Copies of the Baltimore County Fire Department FOIA requests are included in **Appendix E – Environmental Records and Interview Documentation**.

#### *4.2.2 Maryland Department of the Environment Records Review*

Weaver Boos submitted a FOIA request to the Maryland Department of the Environment (MDE) on January 24, 2014 for records associated with the Property. According to a FOIA response from the MDE received on March 17, 2014, information is available from the Air and Radiation Management Administration, Water Management Administration, and Land Management Administration. It was determined that a large amount of information is available from the Land Management Administration. As a result, obtaining and reviewing all of the available files is not *reasonable ascertainable*. Therefore, after a review of the list of documents available, Weaver Boos requested and received select records from the Oil Control and Oil Permits Programs of the Land Management Administration which were identified as being most pertinent to identifying *recognized environmental conditions* for the Property. Weaver Boos is currently coordinating with the MDE to determine which records from the Land Restoration Program of the Land Management Administration are available and pertinent to identifying *recognized environmental conditions* associated with the Property.

The records available from the Water Management Administration are related to storm water runoff and those from the Air and Radiation Management Administration are related to air compliance issues. Being that these records generally pertain to compliance related issues, these records were not requested.

Weaver Boos submitted an additional FOIA request on April 10, 2014 specifically requesting information from the Radiological Health Program. A response from MDE acknowledging receipt of our request was received on April 21, 2014 and indicated we will be notified if any

records exist for the Property. Weaver Boos will forward any information of interest to Bryan Cave LLP after it becomes available for review, if it significantly impacts our conclusions presented herein. Weaver Boos identified this lack of a required interview as a *data gap*, which is discussed further in **Section 10.0**.

Upon review of records from the MDE Oil Control Program, Weaver Boos reviewed a January 29, 1999 tank list submitted to the Oil Control Program as part of Sparrows Point's Oil Operations Permit. Weaver Boos used this list to compile a general list of formerly registered ASTs and USTs at Sparrows Point (included in **Appendix E**). According to Mr. Becker, to the best of his knowledge, the tanks associated with the 1999 tank list were ASTs with exception to one UST located at the Plant Garage. Based on a review of the available records from the MDE Oil Control and Oil Permits Programs, many onsite tanks are registered as closed, although it is unclear whether some of those tanks were abandoned-in-place or were physically removed from the Property. Our review found that at least 10 tanks were recorded as abandoned in place while 17 others have been removed since 1986. Note that most closed tanks may have an 'unknown' status on the tank list in **Appendix E** as they were removed prior to 1999. The MDE also provided UST Certificates of Registration located in the Construction Village documenting that 11 USTs had been removed as of May 11, 2005 and three USTs were currently in use. Another Certificate of Closure issued April 5, 1999 documented that two USTs were removed at The Arundel Corporation at the Concrete Plant. In a review of documents that MDE received from MCM Management Corporation from February 2014, MCM reported 30 total tanks were in use at the former Tractor Repair Shop, Plant Garage, Slab Hauler Repair Facility, and Locomotive Repair Shop. An Oil Operations Permit issued by MDE dated March 19, 2014 authorizes the storage of oil in the following AST systems: 3,400,000-gallon No. 6 heating oil AST, 11,300,000-gallon oily water AST, and 11,300,000-gallon empty AST. Special conditions within the permit indicate the empty AST and associated piping should be dismantled and a sampling plan should be submitted.

In addition to tank records, Weaver Boos reviewed 164 spill reports provided by MDE for spills that occurred from 1980 to 2013. The spill reports documented spill date and times, locations, types of spilled substances, estimated amounts spilled and recovered, as well as the spill sources and causes. The reports identify who is responsible for the cleanup, materials used during cleanup efforts, and where the clean-up materials and/or contaminated soils were disposed. Preventative actions taken to prevent the occurrence of similar future spills were also documented.

The majority of the spill incidents document either full product recovery or agency satisfaction (e.g., Coast Guard) with Sparrows Point's cleanup efforts. Of the spill incident information provided, one incident did not document full product recovery with a total release over 100 gallons which included a 200-gallon spill of a mixture of tar and ammonia liquor in the Coke Oven Area. Additional spill information was discussed in **Section 4.1.1**. Copies of the MDE FOIA requests and responses are included in **Appendix E – Environmental Records and Interview Documentation**.

#### *4.2.3 United States Environmental Protection Agency Records Review*

Weaver Boos submitted a FOIA request to the USEPA on January 29, 2014 for records associated with the Property. According to a USEPA FOIA response dated February 27, 2014, multiple records are available for the Property. A DVD containing select reports related to the history of the Sparrows Point facility was forwarded to Weaver Boos on March 16, 2014. The majority of the records provided by the USEPA are associated with historical and on-going activities in the five Special Study Areas (SSAs) identified in the RCRA Consent Decree as further discussed in **Section 4.4.2**. Our review of these records focused on identifying historical areas or features of the Property representing potential *recognized environmental conditions* that were not associated with previously identified areas of concern in the SSAs.

In addition, according to documents provided by the *user*, the Mud Reservoir (Finding 280 in **Table 1**) is a diamond-shaped area of mixed open/wooded land located in the County Lands 2 Parcel in the northwestern portion of the Property. Much of the CL2 is developed and includes the former Pipe Mill and Cold Mill complexes. The Mud Reservoir received mud and clays from the former Humphrey Impoundment. Based on Weaver Boos' review of the organic data for VOCs, SVOCs, PAHs, and PCBs, concentrations were non-detect to minimal parts per billion (ppb) levels.

According to a Screening Level Ecological Risk Assessment (SLERA) for On-Site Areas report dated April 2009 and prepared by URS, five distinct on-site areas warranted ecological risk evaluation: Humphrey Impoundment, County Lands 1B Parcel, Mud Reservoir, the Former East Pond, and Knobby's Ditch. According to URS, information presented in the SLERA indicates a potential for adverse ecological effects on-site and the potential for off-site migration of constituents. URS developed Scientific Management Decision Points (SMDP) for each of the five areas evaluated. The SMDPs indicated that sufficient data exist to conclude that no further assessment or action is warranted in any of the areas evaluated with the exception of Humphrey Impoundment, where the risks were low to negligible.

According to the FOIA correspondence documents reviewed, the Maryland Port Administration (MPA) expressed an interest in acquiring the Coke Point Peninsula on the Property as a potential site for a Dredged Material Containment Facility (DMCF) for placement of dredged material from channels in the Baltimore Harbor. MPA requested that a risk assessment of the offshore environment around the Coke Point Peninsula be performed to assess whether the observed impacts to surface sediment and surface water pose risks to natural resources or human health. According to the May 2011 Risk Assessment of Offshore Areas Adjacent to the Proposed Coke Point Dredged Material Containment Facility at Sparrows Point report prepared by EA Engineering, Science, and Technology, Inc. (EA), offshore area sediments and surface water contribute chemicals to the local food chain that increase ecological and human health risks. In addition, EA concluded that potential ecological and human health risks for the Coke Point Offshore Area are higher than the background risks in the Patapsco River Background Area.

The February 2014 Multimedia Consent Decree 2013 Annual Report (2013 Annual Report) prepared by Sparrows Point, LLC provides the status of corrective measures activities outlined in the Consent Decree, including activities in the Rod & Wire Mill Sludge Bin Remediation Area, Coke Oven Area Interim Measures, and the Site Wide Investigation. The status of operations at Coke Point and Greys Landfills is also included in the 2013 Annual Report.

Interim measure tasks completed in 2013 in the Rod & Wire Mill Sludge Bin Remediation Area included maintenance of institutional controls at the former storage area, operation, maintenance, and monitoring of the groundwater pump and treat system, and semi-annual monitoring of groundwater. Similar activities are planned for 2014.

Interim Measures in the Coke Oven Area are further described in **Section 4.4.2**. According to the 2013 Annual Report, Cells 1, 3, and 6 are currently operational. Construction and well drilling for Cells 2 and 4/5 was scheduled to begin in February 2014. Fabrication of remediation equipment required for Cells 2 and 4/5 was initiated and delivery of equipment was tentatively scheduled for March 2014.

The 2013 Annual Report indicates Sparrows Point, LLC has requested to remove portions of the property from inclusion within the Site for purposes of the obligations included in the Consent Decree. The properties for which removal is requested include former residential, recreational, and non-industrial areas generally located in the east-central portion of the Site. MDE issued guidance for this removal process in a letter dated October 4, 2013.

According to the documents reviewed, Coke Point Landfill will continue to be used for slag storage and tenant scrap metal recycling and iron bearing material recovery operations until mid-

year 2014. Development of final grading and closure plans for the facility will be prepared during this time for submittal to the appropriate regulatory authorities. A revised erosion and sediment control plan for Greys Landfill was submitted by Sparrows Point, LLC to Baltimore County on December 16, 2013. According to the erosion and sediment control plan reviewed, Greys Landfill reportedly operates in accordance with the approved landfill operations and engineering plan.

Copies of the USEPA FOIA request and response are included in **Appendix E - Environmental Records and Interview Documentation**.

#### *4.2.4 Baltimore County Department of Permits Approvals and Inspections Records Review*

Weaver Boos submitted a FOIA request to the Baltimore County Department of Permits, Approvals, and Inspections on January 28, 2014 regarding information for the Property. According to our review of those records, the Department of Permits, Approvals, and Inspections issued permits for a variety of activities on the Property including construction of a compressor station, hydraulic pump house, control room, equipment room, rectifier building, welding training building, and a number of activities associated with the construction of a pulverized coal injection facility. In addition, permits were issued for blasting of steel stacks and other equipment, electrical work, and plumbing work.

On February 6, 2014, ARM Group Inc. applied for a permit to grade a disturbed area for a groundwater remediation system. On July 19, 2007, Mittal Steel applied for a permit to raze nineteen (19) abandoned buildings. This permit was extended until December 17, 2008. In addition, during the time period from January 2013 to January 2014, eleven (11) additional permits were issued for the razing of numerous buildings including the ladle/sub repair shop, stripper yard, slab mill, seven ore houses, nine sinter strand buildings, an unspecified 591,000-square foot building, electric repair shop, car/buggy repair shop, stock houses and conveyors, a brick storage building, bottom house, bottom house storage, bottom pump house, bottom thick tank building, basic oxygen furnace building, coil storage, loco repair shop, ladle house, pattern storage, air co building, AC repair shop, annealing building, and HSM slab slitting area.

Our review of these records also identified permits issued for installation and removal of USTs and ASTs. The following table summarizes the details of these permits:

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Issue Date	Permit Applicant	Permitted Work
5/10/96	BSC	Installation of two 10,000-gallon aboveground nitrogen storage tanks
8/13/96	A & A Environmental	Removal of one 10,000-gallon UST; installation of one UST for grinding aid oil
10/02/96	A & A Environmental	Abandon one 10,000-gallon UST; installation of UST for grinding aid oil (cancels and replaces permit listed above)
8/10/99	Raytheon Engineers and Construction Inc.	Construction of 4 coal dispenser tanks (injection station pressure vessels)
11/16/99	Raytheon Engineers and Construction Inc.	Installation of one 53,250-gallon aboveground nitrogen buffer tank
11/12/10	Ace Environmental	Remove one 12,000-gallon gasoline UST

USTs on the Property are further discussed in **Section 5.3.2.1**. In addition, drawings associated with permitted work conducted on the following buildings were included in the records provided by Baltimore County Department of Permits, Approvals, and Inspections:

- Rectifier building, oil house, pump house, and control room located on the southwestern portion of the facility (December 9, 1998).

Our review of the drawing for improvements to the Rectifier building (and other buildings in the vicinity) indicates the possible presence of the following ASTs:

- Four potential ASTs with unknown contents and size to the north of the rectifier building;
- Seven potential ASTs to the east and south of the electrical repair building and ladle house;
- One large potential AST to the south of the scrap yard; and
- Multiple potential ASTs to the south of the BOF slag handling area.

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In addition, the oil house (Finding 203) is located to the southwest of the repair shop. A gas pump station is located just east of the adjoining Shipyard and a paint & blast building are shown to the southwest of the oil house on the Shipyard adjoining property. Additionally, a settling basin is shown to the west of the BOF Slag Handling Area.

- Pulverized coal injection facility at L blast furnace located on the central southern portion of the facility (March 10, 1998).

A proposed pulverized coal injection facility drawing shows multiple potential ASTs in the general vicinity of the proposed building location and to the northeast of the proposed building. Two of the ASTs to the northeast are labeled “Oil Tanks”. There appears to be an AST farm to the southwest of the proposed facility building. In addition, there are potential ASTs located to the east and west of the No. 7 sinter plant, to the west of the “L” furnace stock house, and to the north of the track hopper building.

- New cold mill complex located on the northern portion of the facility (December 3, 1997). The drawing for the proposed new cold mill complex indicates there are three cooling tanks located in the northeast area of the complex.
- Scrap handling facility located to the northwest of the former Sparrows Point residential town (November 12, 1998).

The scrap handling facility drawing shows a bulk petroleum storage area to the north of the former town area (Finding 239). In addition, there are soaking pits located adjacent to the No. 5 stripper.

Weaver Boos has identified select items above as Findings for the Property as shown in **Table 1** and with select Findings further discussed in **Section 9.0**. Copies of the Baltimore County Department of Permits, Approvals, and Inspections FOIA request and response are included in **Appendix E – Environmental Records and Interview Documentation**.

#### *4.2.5 Baltimore County Department of Health Records Review*

Weaver Boos submitted a FOIA request to the Baltimore County Department of Health on January 28, 2014 for records associated with the Property. Weaver Boos has not received the FOIA response from the Baltimore County Department of Health as of the date of this *report*. Weaver Boos will forward any information of interest to Bryan Cave LLP after it becomes available for review, if it significantly impacts our conclusions presented herein. Weaver Boos identified this lack of a required interview as a *data gap*, which is discussed further in **Section**



**10.0.** Copies of the Baltimore County Department of Health FOIA request are included in **Appendix E – Environmental Records and Interview Documentation.**

*4.2.6 Baltimore County Department of Environmental Protection and Sustainability*

Weaver Boos submitted a FOIA request to the Baltimore County Department of Environmental Protection and Sustainability (EPS) on January 28, 2014 for records associated with the Property. According to a FOIA response from the Baltimore County Department of EPS received on February 17, 2014, a database search was performed to search for information in their Waste Management and Groundwater Management Sections. It was determined that a large amount of information is present in the Groundwater Management Section. The Department of EPS provided a list of files available from the Waste Management and Groundwater Management Sections. Based on a review of the available files, Weaver Boos requested and received select records which were identified as being most pertinent to identifying *recognized environmental conditions* for the Property.

The Baltimore County Department of EPS provided several historical reports documenting Environmental Site Assessments (ESAs) conducted on Parcels 1A, 1B, 2, 3A, and 3B for the Baltimore County Development Corporation. The assessments were conducted in support of a potential property transfer from BSC to Baltimore County for future economic development. Parcels 1A and 1B are located directly north of Greys Landfill and Parcel 2 is located to the north of Humphrey's Impoundment. Parcels 3A and 3B are located on the east side of the Property between Wharf Road and Sparrows Point Boulevard. Three large oil tanks are located to the south of Parcel 3A.

According to a 1987 report prepared by Environmental Resources Management (ERM), a site assessment was conducted to develop a history of the use of the parcels and to identify any known and/or suspected disposal sites or other areas of potential concern. During a site visit conducted in July 1987, ERM observed over 250 full and partially filled drums on the parcel identified as Site 1A (Spare Parts Yard and Contractor Storage Area). The majority of the drums were observed in the Contractor Staging Area and many were unlabeled and damaged. In addition, ERM observed over 50 oil-filled gear drives, a number of ASTs and USTs, and an earthen oil pit on Site 1A. Parcel 2 (also referred to as Site 2) is identified as the Pipe Mill Complex. ERM observed 35 full and partially full, unlabeled drums on the east side of the rail spur directly north of the Pipe Mill. ERM indicated several drums were under pressure and there were signs of spillage. In addition, a five-foot diameter pit in the southeast sector of the Pipe and Steel Storage/Contractor Laydown Yard was filled with oily debris; however, the ERM report

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indicated that the pit had subsequently been cleaned up. Additional areas of concern (including over 75 drums, potential USTs, and oil-filled, non-PCB transformers) were observed in the Pipe Mill Complex. The primary concern noted for Sites 3A and 3B was the presence of oily sludges that had accumulated along the bank of the canal in proximity to an outfall and oil skimmer station. An additional parcel identified as Site 4 – Old Town Site was also assessed by ERM. The following was noted by ERM: the presence of oil spillage in a fire fighting training area, fourteen (14) partially filled drums of kerosene and oil, large and small diameter earthen- bottom tanks filled with oil/water mixtures, and a leaking gate valve on a full tank. In addition, a service station formerly located at the intersection of H and 9<sup>th</sup> Streets, had been razed. However, a vent pipe, gasoline pump island, and a concrete pad with several fuel fill ports was observed.

A comprehensive site assessment was conducted on Parcels 1A, 1B, 2, 3A, and 3B in 1988 by EA Engineering, Science, and Technology (EA). The assessment included analysis of soil gas, soil, and groundwater samples and a risk assessment to determine the potential concerns related to future use of the property. The results of the assessment identified an area of impacts on Site 1A within the Contractor's Staging Area. This area contained elevated concentrations of benzene, toluene, and xylene in soil gas and soil samples. EA concluded "all of the remaining sites were found not to have significant contamination of soil and groundwater. Occasional hot spots were identified, but were isolated, and primarily related to past slag and process waste disposal." One hot spot was associated with a groundwater sample collected from Well No. W-6 on Site 1B.

A Phase III ESA was conducted by EA in 1993 to further address specific concerns identified during the 1988 assessment. EA indicated the concerns were "the need for confirmation related to contamination in Well No.W-6 on Site 1B and the potential for violating the surface water standards by runoff or groundwater seeps from the existing properties." In 1993, chlorinated compounds were detected in Well No. W-6. According to EA, "the natural groundwater flow is towards Peninsula Expressway and therefore, there is little likelihood that the constituents found in the groundwater in W-6 will increase in concentration or will move to other parts of the site." EA indicated that it is likely that there will be a continued reduction in concentrations due to dilution and degradation. Based on analytical results for four surface water samples, including two samples collected from Bear Creek, EA indicated there were no volatile organic compounds found in Bear Creek. In addition, benzene measured at 135 parts per billion in one surface water sample was attributed to dumping by the public and roadway runoff since benzene was not detected in groundwater samples collected from Site 1B in 1993.

As part of the Phase II ESA, EA also reviewed a report prepared by Groundwater Technology, Inc. to assess the technical value of soil venting/volatile recovery in a location where coal tar was found on Site 1A. EA's review of the pilot study for removing compounds from the coal tar site indicated there should be effective reductions of compounds at a reasonable cost with the exception of semi-volatile compounds. EA also concluded that there were no significant groundwater issues of concern on Site 1A with the exception of low levels of benzene most likely related to the coal tar site.

An additional environmental assessment and subsurface investigation was conducted by EA in 1988 at the Fire Control Complex (also referred to as the "Old Town" site). The site contained a Fire/Police Department, a service station, and cemetery. EA concluded that no significant soil contamination was noted based on the analytical results and concentrations were below the EP toxicity criteria. Lead was detected in downgradient monitoring wells above the EPA drinking water criteria. EA indicated the source of the lead may have been lead contaminated waste oils or leaded gasoline. Volatile and semi-volatile compounds were not detected in the groundwater samples.

A Baltimore County internal memo dated December 14, 1989 indicates that three tanks were removed from the old service station near 7<sup>th</sup> and H Streets. These tanks included one 10,000-gallon fuel oil tank, one 1,000-gallon waste oil tank, and one 550-gallon waste oil tank. During removal, the 550-gallon tank showed evidence of tank failure.

Copies of the Baltimore County Department of EPS FOIA request and response are included in **Appendix E – Environmental Records and Interview Documentation**.

#### **4.3 Physical Setting Sources**

Weaver Boos obtained and reviewed published, *reasonably ascertainable* information concerning the physical setting of the Property. Weaver Boos obtained that information from the following sources:

- A topographic map prepared by USGS.
- Maps and publications prepared by Rust Environmental & Infrastructure (Rust 1998) in January 1998.
- Maps and publications prepared by EA Engineering, Science, and Technology, Inc. (EA 2009, EA 2010) in November 2009 and April 2010.

The following is a summary of our review of those *physical setting sources*.

#### *4.3.1 Topography*

The purpose of the topographic map review is to evaluate the presence of physical structures and/or unique topographic conditions that would be of potential importance in the event of a release or migration of a hazardous material to or from the Property. Weaver Boos reviewed the USGS 1974 Sparrows Point, Maryland, 7.5-minute quadrangle topographic map showing the area in which the Property is located (see **Figure 1**). The USGS map shows that the Property is at an elevation of approximately 10 feet above msl and slopes in a general southwest direction although it varies in different areas due to the location of nearby water bodies. As shown in **Section 4.4.1** and discussed in previous sections of this report, the Property peninsula was originally comprised of approximately 2,166 acres of land with the remaining area comprised of water. Over time slag fill materials generated from the on-site steel making activities were placed in the water filled areas in and surrounding the Property. The slag fill was placed in both the water bodies in the interior of the peninsula (such as Humphrey Creek) as well as expanding outward to the surrounding river and bay areas, thus bringing the Property land mass acreage to the current approximate 3,100 acres of land.

Based on information provided in historical reports, unconfined groundwater exists within a shallow aquifer composed of the slag fill material, and intermediate and deep aquifers exist within the Talbot and Patapsco formations, respectively. The aquifers are hydraulically interconnected, but are partially separated in areas by discontinuous lenses of silt and clay. Radial flow on the western side of the Property is toward the Patapsco River to the west. Flow on the south side of the Property is south toward the southern shoreline and turning basin. Flow on the east side of the Property is toward Old Road Bay to the east. Groundwater flow direction within the intermediate aquifer along the western portion of the Peninsula is northwestward, apparently influenced by historic pumping activities in the area near the shipyard to the west of the Property. Groundwater flow direction within the intermediate aquifer along the eastern portion of the Property is south-southwest in the apparent direction of the natural gradient. Groundwater flow direction within the deep aquifer is unidirectional to the east-northeast.

#### *4.3.2 Regional Subsurface Geology*

Based on our review of information provided in historical reports, the Sparrows Point facility is located within the Coastal Plain Physiographic Province, which is the relatively low-lying portion of the Atlantic Slope. The unconsolidated sediments beneath Sparrows Point rest on a surface of Precambrian and Early Paleozoic crystalline bedrock that slopes downward to the southeast. The unconsolidated sediments include (from youngest to oldest) recent fill deposits

(man-made) consisting primarily of iron- and steel-making slag approximately thirty (30) feet (ft.) thick; the Pleistocene Talbot Formation (predominantly clays, organic clays, silts and muds) approximately five to 100 ft. thick; the Upper Cretaceous Patapsco Formation (predominantly sand and gravel interbedded with lenses of sandy clay) approximately 145 to 255 feet thick; the Upper Cretaceous Arundel Formation (predominantly dense, plastic clays with nodules of iron oxide and a few discontinuous lenses of sand) approximately 20 to 180 feet thick with an average thickness of 100 feet; and the Lower Cretaceous Patuxent Formation (interbedded and lenticular beds of gravel, sand, sandy clay, and clay) approximately 50 to 250 feet thick. The Cretaceous formations comprise the Potomac Group.

#### **4.4 Historical Use Information**

The objective in consulting historical sources is to develop a history of the previous uses or occupancies of the Property and surrounding area in an effort to identify those uses or occupancies that are likely to have resulted in the presence of a Finding in connection with the Property.

According to ASTM E 1527-13, identifying prior uses of the Property is a two-tiered process. The first step is to evaluate uses of the Property from the present back to the year 1940 using *standard historical sources*. The second step involves assessing the uses of the Property prior to the year 1940, or until a time when the Property was not yet developed, again using *standard historical sources*. Weaver Boos requested and reviewed the following *standard historical sources* as part of this Phase I ESA:

- Historical aerial photographs;
- Fire Insurance Maps;
- Historical USGS 7.5-minute quadrangle maps; and
- Local Street Directories.

Our review of *standard historical sources* obtained during this Phase I ESA is presented in the following sections. Copies of the historical records that we obtained are included in **Appendix F - Historical Records Documentation**.

##### *4.4.1 Historical Use Information on the Property*

In summary, our review of the historical records described in the following sections suggests that the Property was developed in 1887 with a furnace, and the first iron was cast in 1889. In 1916, Bethlehem Steel Corporation (BSC) enlarged the Property by building mills to produce hot

rolled sheet, cold rolled sheet, galvanized sheet, tin mill products, and steel plate. By 1959, the Property operated 12 coke oven batteries, 10 blast furnaces, and four open hearth furnaces. Furnaces A-G and K were demolished and removed from the site between 1979 and 1985. Batteries 7 and 8 were removed in the 1980s. The coke ovens ceased operations in December 1991. Demolition of batteries one through six and nine through ten (10) was completed in November 1993. In 2001, BSC filed for bankruptcy, and by May 2012 iron and steelmaking operations were shut down. Throughout 2013 and 2014, structures on the Property have been demolished and active demolition was observed to be on going during the *site visit*.

4.4.1.1 Historical Aerial Photographs

Weaver Boos reviewed historical *aerial photographs* provided by HIG. Weaver Boos focused the following assessment on identifying historical areas or features of the Property representing potential *recognized environmental conditions* that are not previously identified based on the RCRA Facility Assessment, DCC Report, or other related subsequent studies. The following table summarizes the findings of our review of those photographs with respect to the Property and adjoining properties:

<b>AERIAL PHOTOGRAPHS</b>		
<b>Date</b>	<b>Source</b>	<b>Observations</b>
1927	HIG	<p>North of Humphrey Creek, the Property consists mainly of farmland with a few farmsteads that typically include a house and barn. Parts of the northeast appear to be forested. What appears to be a small railroad service complex includes several buildings at the west end of what is now the Greys Yard, which itself only appears as a mainline of the Baltimore &amp; Ohio (B&amp;O) Railroad. The former Rod &amp; Wire Mill is visible, flanked to the east and west by railroad tracks. The former Pipe Mills appear as a space frame and may be under construction. A railroad bridge connecting the northern and southern portions of the Property (across the Humphrey Creek) is present.</p> <p>Mills are present just south of Humphrey Creek (current Tin and Cold Sheet Mill area). The former company town of</p>

<b>AERIAL PHOTOGRAPHS</b>		
<b>Date</b>	<b>Source</b>	<b>Observations</b>
		<p>Sparrows Point lays to the south of these mills. Two areas of the town were shown to have tanks according to our review of the Fire Insurance Maps below (<b>Section 4.4.1.2</b>). The Plate Mill and East Process Building appear to be present, as is Machine Shop No. 2. South of Machine Shop No. 2 is what appears to be residences/housing. The residences/housing are flanked to the west by buildings of the shipyard and to the east by a rail yard and by what appear to be the 412 Yard &amp; Shop, Brick Storage Building, and former Ladle House. These are flanked to the east by what appear to be two open hearth steel-making shops. The southwestern part of the Property includes the former No. 10 Fuel Oil Storage Tanks just east of the coal slip and several other large ASTs. The former Benzol/Litol Plant is present, as are several coke batteries, several blast furnaces, the former Gas Blowing Engine, Gas Engine House, and Electrical Storage Building. Little land is present to the south of this area. Recent fill placed to create new land to the east of the present turning basin is apparent, likely comprised mainly of iron or steel-making slag.</p>

<b>AERIAL PHOTOGRAPHS</b>		
<b>Date</b>	<b>Source</b>	<b>Observations</b>
1938	HIG	<p>The majority of the Property north of Humphrey Creek remains farmland. What appeared as a mainline of the B&amp;O Railroad at the location of the present Greys Yard is widened with several additional tracks. The Rod &amp; Wire and Pipe Mills are improved with additional buildings. Two ponds appearing to be Solid Waste Management Units (SWMUs) 28 and 29 (per the DCC Report) are visible at the north end of the former Rod &amp; Wire Mill. The placement of fill to create new land is apparent along the north and south banks of Humphrey Creek.</p> <p>The 56-in Hot Strip Mill has been added to the Property south of Humphrey Creek. What was recently the Nelson Box facility was also added. The former Sparrows Point company town and the two areas with tanks remain present. The Plate Mill area east of Machine Shop No. 2 is improved with additional buildings, including the former Skelp Mill, Soaking Pits No. 1-4, and the Slab Mill. The No. 3 Open Hearth Shop appears in the steel-making area. The southwestern portion of the Property has been improved with what appears to be a large coke oven gasholder. Several ASTs are located in this area apparently associated with the coke oven (Finding 279 on <b>Table 1</b>). What appears to be a large surface impoundment is visible just north of the coal slip and coal yard. It extends northerly onto what is presently shipyard property just east of the shipyard's Graving Dock. Apparent dark plumes on the adjoining surface waters of Bear Creek and the Patapsco River suggest process water discharges from the surface impoundment and Coke Oven Area just to the south (Finding 277 on <b>Table 1</b>). The recent placement of additional fill creating more land is also apparent on the southeastern portion of the Property.</p>



<b>AERIAL PHOTOGRAPHS</b>		
<b>Date</b>	<b>Source</b>	<b>Observations</b>
1952	HIG	<p>Much of the Property north of Humphrey Creek remains farmland. The Greys Yard is improved to nearly its present extent, including the Patapsco &amp; Back Rivers (PBR) Railroad yard office at its east end. High Head Reservoir has been added to the northeastern part of the Property. Two ponds appearing to be SWMUs 28 and 29 (per the DCC Report) remain visible at the north end of the former Rod &amp; Wire Mill. Recent fill placed along the northern and southern banks of Humphrey Creek have created new land and decreased the extent of surface water.</p> <p>Several apparent process water discharges to the surface water of Humphrey Creek to the north of the Finishing Mills and Hot Strip Mill Areas create what appear as dark plumes. Additional improvements south of Humphrey Creek include the 68-in Hot Strip Mill and rail yard to its east, the Brick Storage Building, Carpenter Shop, PBR Railroad Shop, and the Big Apple water tank. The company town of Sparrows Point remains, as do both areas with tanks. Two large ASTs of what is now the Pennwood Tank Farm are present southeast of the town, with what may be dark staining of the ground surface within the containment berm of the eastern tank. The Pennwood Power Station has been added, along with its easterly-trending canal to Old Road Bay. Two blast furnaces have been added just south of the No. 4 Open Heath Shop. Additional recent filling is visible on the southeast part of the Property, further increasing the land area southerly into the adjoining Patapsco River. A large apparent surface impoundment is visible at the west end of what is now the “B” Yard along the south side of the turning basin (Finding 272 on <b>Table 1</b>). The Coke Oven Area appears to have been</p>

<b>AERIAL PHOTOGRAPHS</b>		
<b>Date</b>	<b>Source</b>	<b>Observations</b>
		<p>improved with several additional batteries. The large ASTs west and northwest of the Coke Oven Area remain, including the former No. 10 Fuel Oil Tank. The large apparent surface impoundment remains visible just north of the coal slip and coal yard, extending northerly onto what is presently shipyard property just east of the shipyard's Graving Dock. A prominent dark plume appears to emanate from this surface impoundment, suggesting a significant discharge to Bear Creek. A second prominent plume appears to emanate from the bank just south of the Coal Field. A small, dark, rectangular image appearing to be a surface impoundment or pond is visible in the Primary Rolling Mills Area, directly southwest of the Big Apple water tank (Finding 238 on <b>Table 1</b>).</p>
1957	HIG	<p>Cultivated farmland is no longer present on the Property. Ponds appearing to be SMWUs 28 and 29 (per the DCC Report) remain visible at the north end of the former Rod &amp; Wire Mill. Mud Reservoir has been constructed to the east of the former Pipe Mill. Recent fill placed along the northern and southern banks of Humphrey Creek have eliminated its surface water north of the Tin Mill and forming part of what is now the TMC. A small, dark, irregularly shaped image appearing to be a pond is visible immediately north of the TMC, in the area that is now a vehicle parking lot just east of the "G" Gate along the south side of Route 158 (Finding 273 on <b>Table 1</b>). This pond appears to be discharging a dark plume to the adjoining surface water of the remnant Humphrey Creek. This historic feature is located north of the TMC/Finishing Mills Special Study Area boundary.</p> <p>The railroad operations occurring on the southern edge of the</p>

<b>AERIAL PHOTOGRAPHS</b>		
<b>Date</b>	<b>Source</b>	<b>Observations</b>
		<p>northern portion of the Property have been expanded. The Finishing Mills Area is improved with northerly additions to the Tin Mill. The PORI oil recovery plant and Pori Lagoon (SWMUs 71, 72, and 73 per the DCC Report) have been added north of the Sheet Mill building. Two moderately large ASTs are visible at the southeast corner of the former 56-in Hot Strip Mill. A large circular structure appearing to be an AST surrounded by a circular berm is visible along the east side of Wharf Road at the Sparrow Point Boulevard Interchange in an area identified as the Carrier Express Terminal. From the presence of the berm, it is considered reasonably likely that the AST may have contained oil. This feature remains visible in the 1994 aerial photograph, but is no longer present in the 2002 aerial photograph. The “Yacht Club” railyard is first visible in the 1957 aerial photograph, displacing a former golf course. The H and J Furnaces have been added in the Blast Furnace Area. What appear to be four Sinter Strands are now present at the east end of the turning basin. The B Coal Chemical Plant appears to be added at the south end of the Coke Oven Area. The former No. 10 Fuel Oil Tank remains, but the apparent surface impoundment formerly located just north of the coal slip is no longer present. No obviously apparent surface water discharge plumes remain on Bear Creek or the Patapsco River. The southern parts of the Property continue to expand by recent filling into the Patapsco River. The company town remains, but the buildings associated with the far west gas tanks are no longer present.</p>

<b>AERIAL PHOTOGRAPHS</b>		
<b>Date</b>	<b>Source</b>	<b>Observations</b>
1964	HIG	<p>Just north of the Property, a cluster of small to medium-size circular structures appearing to be ASTs is visible in the 1964 aerial photograph and appear to be located a short distance north of the Greys Yard, directly north of the former U.S. Can facility is visible in the 1964 aerial photograph. This cluster of ASTs is replaced with two larger ASTs in later aerial photographs.</p> <p>A large area of new land has been created north of the current location of the Greys Landfill, claiming formerly open water of a cove. The Property north of Humphrey Creek is improved with the now former U.S. Can Building, the Reservoir Warehouse, the Air Products Plant along the west shore of High Head Reservoir, additional roads, and employee parking. The former East Pond (SWMU 29 per the DCC Report) remains present at the north end of the former Rod &amp; Wire Mill, but the former Northwest Pond is no longer apparent. A small Oil Recovery plant is present just north of the TMC, and an apparent small, rectangular surface impoundment is visible to the southwest. The impoundment is diked to separate it from the remaining surface water of Humphrey Creek. Several apparent plumes appear to emanate from several apparent discharges along the TMC and southern shore of Humphrey Creek. The northern part of the “Contractor’s Village” east of the Hot Strip Mill is visible. Much of the former company Sparrows Point residential town remains further to the south. The Primary Rolling Mills Area has been improved with the 45 x 90 Slabbing Mill, Slab Yard, No.5 Soaking Pits, and the No. 5 Stripper. The Blast Furnace and Coke Oven Areas appear largely unchanged. The Pennwood Wharf building and Capital Workforce buildings now improve the southeast corner of the Property. Southerly filling continues to provide new land along the southern shores of the Property.</p>

<b>AERIAL PHOTOGRAPHS</b>		
<b>Date</b>	<b>Source</b>	<b>Observations</b>
1966	HIG	The remaining parts of Humphrey Creek appear to receive additional fill. The Finishing Mills Area is improved with several ASTs at its north end. The southern extent of the Property continues to expand by the continuing placement of fill. No other prominent changes are obviously apparent.

<b>AERIAL PHOTOGRAPHS</b>		
<b>Date</b>	<b>Source</b>	<b>Observations</b>
1971	HIG	<p>Considerable land-modifying activity is apparent on the Property north of what was formerly Humphrey Creek, now the TMC. The apparent removal of borrow has created two water-filled basins just south of the Greys Yard. Forest north of the Air Products plant has been developed for apparent material storage of what may be railroad ties. The In Process Storage Building (recently DACS, Inc.) has been added. The building most recently occupied by Dietrich Bros. was also added. What appears to be a large laydown yard is visible just south of the High Head Reservoir. What appears to be another “Contractor’s Village” or similar area appears active in the area east of the present Greys Landfill. A large storage yard appears north of the present Greys Landfill. The beginnings of Greys Landfill itself are apparent in this photograph. What appears to be a large pipe storage yard is located east of the former Pipe Mill. The Billet Record Building is present south of the Pipe Mill. What is now known as Humphrey Impoundment has been enclosed, eliminating the downstream reach of Humphrey Creek. The TMC is completed to its current extent and the initial facilities of the HCWWTP are present, including its Settling Basins No. 1, 2, and 3.</p> <p>South of the TMC, prominent changes to the facility include the apparent completion and operation of the No. 1 BOF Shop in the steel-making area. Emissions from the remaining open hearth shops appear absent or much reduced. The recent placement of fill continues to expand the Coke Point Area of Property towards the south.</p>

<b>AERIAL PHOTOGRAPHS</b>		
<b>Date</b>	<b>Source</b>	<b>Observations</b>
1982	HIG	<p>North of the TMC, the area currently occupied by Greys Landfill appears as a series of approximately fifteen (15) cells that received air pollution control sludge, dust, or similar wastes according to other records reviewed by Weaver Boos. The borrow areas south of the Greys Yard appear to have received fill. The Humphrey Impoundment appears to continue to receive fill.</p> <p>South of the TMC, the majority of buildings in the company town are no longer present. The L Furnace is added in the Blast Furnace Area. The Atlantic Cement Company’s water granulating plant is added just north of the L Furnace. The Pennwood Tank Farm is expanded with several additional large ASTs (several million gallons each). The former No. 7 Sinter Strand is now present southeast of the Pennwood Power Station. The recirculating industrial water (RIW) system is present. A moderately dark image appearing to be a surface impoundment is visible southwest of the former Blue Circle Atlantic Cement Co. facility (currently Lafarge) near the southeast corner of the Property. This feature appears to remain visible in the 2011 aerial photograph (Finding 274 on <b>Table 1</b>). What appear to be two large surface impoundments are visible along the west side of the Coke Point forming the southwestern part of the Property. Several ASTs generally associated with the coke ovens appear to be removed.</p>
1994	HIG	<p>North of the TMC, the Air Products Plant is further improved with an additional liquid oxygen storage tank. The footprint of what is now Greys Landfill remains in its cellular configuration. The Humphrey Impoundment appears to be filled, with little or no remaining surface water.</p>

<b>AERIAL PHOTOGRAPHS</b>		
<b>Date</b>	<b>Source</b>	<b>Observations</b>
		<p>South of the TMC, additional improvements include the Chrome Recovery Plant along its southern bank and the Maryland Pig Plant along Wharf Road on the east side of the Property. The former No. 10 Fuel Oil Storage Tank, most of the formerly nearby ASTs, and the coke oven gas holder have been removed. What appears to have been the No. 1 Open Hearth Shop is no longer present. The Sparrows Point residential town is no longer present, only some of its streets remain.</p>
2002	HIG	<p>North of the TMC, the Greys Landfill is under development as vertical area fill. What appear to be intermodal containers are stored in the yard to its north. The New Cold Mill is present to the northeast of the former Pipe Mill. The No. 1 settling basin of the HCWWTP has been filled in, and construction of the current treatment plant appears to be underway. The sediment dewatering pad for maintenance dredging of the TMC is added along the northern bank of the canal, directly south of the High Head Reservoir. The PBR Railroad yard office at the east end of the Greys Yard is no longer present.</p> <p>South of the TMC, the coke batteries and most of the related facilities of the Coke Oven Area are no longer present.</p>



<b>AERIAL PHOTOGRAPHS</b>		
<b>Date</b>	<b>Source</b>	<b>Observations</b>
2011	HIG	<p>The Greys Landfill’s surface elevation is increased north of the TMC. The HCWWTP is visible in its current form. The western-half of the former No. 2 Settling Basin is filled. An approximately 2.5-acre surface impoundment, is described by Mr. Becker, <i>key site manager</i> of the Property, as composite-lined including a flexible membrane. This improvement is immediately north of the HCWWTP.</p> <p>South of the TMC, the two ASTs formerly located southeast of the 56-in Hot Strip Mill are no longer present. A large AST has been removed from the Pennwood Tank Farm. The former No. 3 and 4 Open Hearth Shops are no longer present.</p>

Our review of the *aerial photographs* identified historical industrial operations and the presence of numerous tanks on the Property. Weaver Boos has identified the presence of select industrial operations, surface impoundments, and select current/historical ASTs on the Property as Findings in connection with the Property as noted above, as shown on Table 1, and with select Findings further discussed in **Sections 9.0**. Copies of the *aerial photographs* reviewed are included in **Appendix F - Historical Records Documentation**.

4.4.1.2 Fire Insurance Maps

Weaver Boos reviewed Sanborn<sup>TM</sup> *fire insurance maps* provided by HIG. Only a portion of the Property was available for view on the maps. The following table summarizes the findings of our review with respect to the historical presence of the Sparrows Point residential town on the Property:

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<b>SANBORN FIRE INSURANCE MAPS</b>		
<b>TILE</b>	<b>DATE</b>	<b>OBSERVATIONS</b>
1- Far east edge of town	1926	The area is improved with a carpenter shop and dwellings.
	1935	The area is improved with a public school, auto stalls, and dwellings. The town has expanded farther east.
2- Southwest edge of town	1926	The area is improved with dwellings, boarding, PRR passenger depot, a fire department, lodges, halls, stores, movies, and a drug store. Gas tanks are visible in a field surrounded by a dispensary, lock up, bakery and ovens, warehouse, and service stores.
	1935	This area is unchanged from 1926.
3- South edge of town	1926	This area is improved with dwellings, St. Luke's R.C. Church, Sparrows Point Public School, St. Johns Evangelical Church, Sunday School, First Methodist Church, Bank, and First Presbyterian Church.
	1935	This area is unchanged with the exception of buildings labeled as drug stores and a post office.
4- Southeast edge of town	1926	This area is improved with dwellings, boardings, an auto garage with 3 tanks visible, bank, office, stores, dept store, post office, St. Matthews R.C. Church, and a parish library. This area is also improved with a pumping station which includes a concrete reservoir, pump house, and standpipe.
	1935	This area is unchanged from the 1926 map.
5-Center of town	1926	This area is improved with dwellings, and an auto parking garage. The far east edge of the town is inset and shows Sparrows Point High School and dwellings.

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<b>SANBORN FIRE INSURANCE MAPS</b>		
<b>TILE</b>	<b>DATE</b>	<b>OBSERVATIONS</b>
	1935	This area is unchanged with the exception that the Sparrows Point High School has expanded north.
6- East edge of town	1926	This area is improved with a garage and dwellings.
	1935	This area is unchanged with the exception that two dwellings from the 1926 map are now labeled Hotel Roberts.
7- Northwest edge of town	1926	This area is improved with employee's quarters and includes buildings labeled dining room, wash house, tailor, mess hall, School. The area is also improved with dwellings and a laundry and bottling works.
	1935	This area is unchanged with the exception that the laundry is now labeled Enterprise Laundry Company and includes a boiler room.
8- Northeast edge of town	1926	This area is improved with employee's (colored) quarters which include buildings labeled warehouse and dairy. The area is also improved with boardings, dwellings, Union Baptist Church, a Sunday school, a general store, Ebenezer A.M.E. Church, and a building labeled auto stalls with 3 tanks associated with it. A possible tank is also visible in a building north of the employees' quarters.
	1935	The area is unchanged with the exception that this area is now improved with buildings labeled dairy and warehouse that are not open.

Our review of the Sanborn<sup>TM</sup> *fire insurance maps* identified three areas with possible tanks (a total of nine potential tanks) and two areas with boilers which have a potential for associated heating oil tanks on the Sparrows Point residential town portion of Property. Weaver Boos lists the historical presence of tanks as Finding 271 in connection with the Property as shown on

**Table 1** and as further discussed in **Section 9.0**. Copies of the EDR Sanborn™ *fire insurance maps* reviewed are included in **Appendix F - Historical Records Documentation**.

4.4.1.3 Historical USGS Topographic Maps

Weaver Boos reviewed historical USGS topographic maps provided by EDR. The following table summarizes the findings of our review with respect to the Property and adjoining properties:

<b>HISTORICAL TOPOGRAPHIC MAPS</b>		
<b>Map Name and Size</b>	<b>Date</b>	<b>Observations</b>
North Point, Maryland 1:62,5000	1904	The northern and southern portions of the Property are still separated by Humphrey Creek. The northern portion is slightly developed with a few roads. The southern portion is improved with more development. The town and industrial areas are improved with more buildings and railroads. The land area of the Property is similar to the 1893 map.
North Point, Maryland 1:62,5000	1943	The northern and southern portions of the Property are still separated by Humphrey Creek; however, industrial development on the northern portion is now connected via railroad to the southern portion. The town on the southern portion is present, but no buildings are visible. The industrial developments appear as large buildings connected with railroads. Aboveground tanks are visible on the southwest edge.

<b>HISTORICAL TOPOGRAPHIC MAPS</b>		
<b>Map Name and Size</b>	<b>Date</b>	<b>Observations</b>
<p>Sparrows Point, Maryland  1:24,000</p>	<p>1944</p>	<p><i>Northern Portion:</i></p> <p>With the exception of the far northeastern corner, the Property is fully developed as an industrial facility. Humphrey Creek intersects the Property. North of Humphrey Creek, farmland and a railroad are present as well as an industrial facility. The facility is associated with a railroad and is connected to the southern portion of the Property by a railroad bridge across Humphrey Creek.</p> <p><i>Southern Portion:</i></p> <p>The eastern edge of the Property is developed with numerous buildings connected by railroads throughout the Property. The southwest area includes chimneys and aboveground tanks. The southeast area consists of primarily railroad tracks. The town remains on the eastern edge of the Property. Within the town are five churches and three schools. The northern area includes mills. An additional building in the far northeastern corner is present on this map.</p>
<p>North Point, Maryland  1:62,5000</p>	<p>1947</p>	<p>This map is unchanged from the 1944 map with the exception that more railroad tracks have been added to the southeastern edge of the Property.</p>

<b>HISTORICAL TOPOGRAPHIC MAPS</b>		
<b>Map Name and Size</b>	<b>Date</b>	<b>Observations</b>
<p>Sparrows Point, Maryland  1:24,000</p>	<p>1969</p>	<p><i>Northern Portion:</i></p> <p>The Property is still intersected by Humphrey Creek, but the far eastern edge of the northern portion is much more developed. The railroad facilities have increased in size and additional buildings have been added. A major highway (Peninsula Expressway) is now present on the northern portion of the Property. Facilities with associated tanks are present on the western edge of the High Head Reservoir, and buildings have been constructed on the east side of the reservoir. A substation is now present on the Property.</p> <p><i>Southern Portion:</i></p> <p>The eastern edge of the Property has developed into the Bay further. The eastern edge is improved with more buildings. A water tank is indicated on the northern edge. The southwestern edge of the Property has developed into the Bay, and improved with more buildings and railroad activity. Additional aboveground tanks are also present in this area. Water tanks are present along the southern edge, as well as other aboveground tanks. The southeastern edge of the Property landmass has expanded further into the Bay with additional railroad activity and structures. Individual structures are no longer indicated in the town, but it is shaded to indicate development. Six churches and one school are present. Two large aboveground tanks are present southeast of the town. The mills in the northeast area have increased in size and further into Humphrey Creek.</p>

<b>HISTORICAL TOPOGRAPHIC MAPS</b>		
<b>Map Name and Size</b>	<b>Date</b>	<b>Observations</b>
Sparrows Point, Maryland  1:24,000	1974	<p><i>Northern Portion:</i></p> <p>The Property is primarily connected; however, Humphrey Creek still remains. Two additional aboveground tanks and a building are present surrounding Humphrey Creek.</p> <p><i>Southern Portion:</i></p> <p>The southwestern edge of the Property landmass has expanded further into the Bay as have the railroad operations. An additional aboveground tank and building are present. Conveyers are indicated on the southeastern edge of the Property, which has also expanded. The town is no longer shaded and the majority of structures are no longer present. Two small buildings have been added to the mill area. A new aboveground tank is present off the northwest corner of the building that is farthest east on the Property.</p>

Our review of the historical USGS topographic maps provided by HIG identified numerous industrial operations and aboveground tanks present on the Property. The majority of the aboveground tanks are identified on the southern and southwestern edge of the Property. Weaver Boos lists the historical presence of select ASTs and the presence of select industrial operations as Findings in connection with the Property as shown on **Table 1** and with select Findings further discussed in **Section 9.0**. Copies of the historical USGS topographic maps reviewed are included in **Appendix F - Historical Records Documentation**.

4.4.1.4 Local Street Directory

Weaver Boos reviewed the *local street directories* report provided by HIG. Please note that due to the large size of the Property only select roads were searched. The following table summarizes the findings of our review with respect to Sparrows Point Road and Riverside Drive on the Property:

<b>LOCAL STREET DIRECTORIES</b>	
<b>Date</b>	<b>Observations</b>
1959, 1962, 1975, 1980, 1985, 1989, 1994	The Property is not listed.
2011	The Property is listed under the following names: Bethlehem Steel Corporate Customer, DTE Sparrows Point LLC, Keibler Thompson Corp Bethlehem Steel, Mobile Dredging & Pumping Company, Mono Ceramics, Onyx Precision Services, Patapsco & Bck Rivers Railroad Company Prsnl, Quality Industrial Contracting, and Stevens Painton Inc.

Our review of the HIG *local street directories* report identified multiple industrial operations on the Property, with select operations and facilities which Weaver Boos as identified as Findings in connection with the Property as shown in **Table 1** and for select Findings further discussed in **Section 9.0**. A copy of the *local street directories* is included in **Appendix F - Historical Records Documentation**.

#### 4.4.2 Historical Environmental Reports

Bryan Cave LLP provided Weaver Boos with over a thousand historical environmental reports as part of this Phase I ESA. These documents included, but were not limited to, current and historical use summaries, enforcement actions, compliance documents, sampling results, annual reports, equipment status reports, UST and AST documents, and many others. Due to the extreme volume of these documents, the review of all of the provided documentation is not *practicably reviewable* for purposes of the Phase I ESA. However, Weaver Boos did conduct a high level screening of the available documents as summarized in **Table 3: Environmental Document Compendium**. Following the screening process, select documents identified to have significant relevance to the Property history or which were useful in identifying *recognized environmental conditions* were further reviewed including, but not limited to:

- A.T. Kearney, Inc.; August 1993; *Final RCRA Facility Assessment Phase II Report*.
- Rust Environment & Infrastructure; January 1998; *Description of Current Conditions: Bethlehem Steel Corporation, Sparrows Point, Maryland Volumes I and II*;



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- URS; January 2005; *Site Wide Investigation, Report of Nature & Extent of Releases to Groundwater From the Special Study Areas*;
- CH2MHill; June 2002; *Site-Wide Investigation Release Site Characterization Study*;
- Maryland Department of the Environment; August 2011; *Sparrows Point Steel Mill Site, Status of the Environmental Activities Under the 1997 Consent Decree*;
- United States Environmental Protection Agency; August 2010, *Severstal Sparrows Point (Formerly: ISG Sparrows Point, Bethlehem Steel) Status*; and
- EA Engineering, Science, and Technology, Inc.; April 2010; *Draft Work Plan: Risk Assessment of Offshore Areas Adjacent to the Proposed Coke Point Dredged Material Containment Facility at Sparrows Point*.

Our review of the documents was used in an effort to generate a general site history and to identify *recognized environmental conditions* associated with the Property. Excerpts from these reports and others have been included throughout the Phase I ESA where appropriate. A general summary of the documents relating to the Property, its history, and status of current conditions follows.

In 1987 and 1988, a RCRA Facility Assessment (RFA) was conducted at the BSC Sparrows Point facility on the Property to determine whether SWMUs and other Areas of Concern (AOCs) released or had the potential to release hazardous wastes or hazardous waste constituents to various media. The Interim Draft RFA Report was submitted to the USEPA in April 1988, with assorted meetings and a Visual Site Inspection (VSI) conducted in 1991. The Final RFA was issued in 1993 which identified a total of 203 SWMUs and 28 AOCs.

On February 25, 1997, the USEPA filed a complaint under RCRA against BSC claiming that BSC operated a hazardous waste treatment, storage, or disposal facility and that a release of hazardous constituents had occurred. On October 8, 1997, BSC, the USEPA, and the MDE entered into a Consent Decree to address releases from historical and on-going operations at the facility. The Consent Decree requires three types of corrective measures to be implemented as follows:

- Complete a Site Wide Investigation (SWI) to investigate releases of hazardous constituents from the facility;
- Use Interim Measures (IM) to address releases that require immediate action; and
- Submit a Corrective Measures Study (CMS) Report.

The Consent Decree also includes provisions for waste minimization, compliance requirements for air emissions and additional requirements regarding the two solid waste landfills (Greys Landfill and Coke Point Landfill).

#### 4.4.2.1 Overview of Site Wide Investigations

As required by the Consent Decree, BSC submitted a DCC Report on January 20, 1998 describing prior investigations and identifying potential sources of contaminants. According to the DCC Report, and as noted previously, a total of 203 SWMUs and twenty-eight (28) AOCs were initially identified at the facility as part of the RFA completed in 1988 and revised in 1993. Based on additional screening and further evaluation, a total of eighty-four (84) SWMUs and twenty-six (26) AOCs were selected for further consideration following completion of the DCC Report. Since 1999, approximately twenty-five (25) work plans and reports have been submitted to the USEPA and MDE for review and approval. While various investigation reports have been submitted and approved by the MDE as described further below, a comprehensive Site-Wide Investigation (SWI) Report has not been completed to date as required by the Consent Decree.

As part of the SWI, the Consent Decree identified the following five SSAs on the Property as priority areas for investigation:

- Tin Mill Canal/Finishing Mills (Findings 1-60 on **Table 1**);
- Humphrey Impoundment (Finding 61 on **Table 1**);
- Greys Landfill (Findings 62-64 on **Table 1**);
- Coke Point Landfill (Findings 65-66 on **Table 1**); and
- Coke Oven Area (Findings 67-130 on **Table 1**).

According to the USEPA, BSC submitted work plans for all five SSAs in the summer of 2001 and field work associated with the work plans was completed by Fall 2001. Subsequently, the following major work plans and reports were submitted to the USEPA and MDE:

- *Site Wide Groundwater Study Report*, December 2001 (CH2M Hill 2001);
- *Site Wide Investigation Release Site Characterization Study*, June 2002 (CH2M Hill 2002);
- *Site-Wide Investigation Work Plan to Evaluate the Nature and Extent of Releases to Groundwater from the Special Study Areas*, July 2002 (CH2M Hill 2002);

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- *Site Wide Investigation Report – Nature and Extent of Releases to Groundwater from Special Study Areas*, January 2005 (URS 2005);
- *Environmental Indicator Human Health Evaluation Report*, Spring 2005;
- *Ecological Risk Assessment Work Plan*, June 2006;
- *Screening Level Ecological Assessment* (on-site habitats), April 2008; and
- *Baseline Ecological Risk Assessment for On-Site Areas*, October 2011.

The SWI Release Site Characterization Study (RSC Study), conducted in November and December 2001, was designed to focus on the five SSAs. The purpose of the RSC Study was to define the stratigraphy within the upper 100 to 120 feet of subsurface material in each SSA and define the movement and quality of groundwater in the upper groundwater system within the SSAs. The Nature and Extent Groundwater Investigation (N&E Investigation) was conducted to define the vertical and horizontal extents of the chemicals of potential interest (COPI) in the five SSAs. The N&E Investigation was conducted in three phases and was completed in November 2002 to February 2003, December 2003, and June 2004 to July 2004. Based on its review of the January 2005 URS report, the USEPA determined that the report met the investigation objectives and no additional field data collection was requested. A summary of the investigative work conducted within the five SSAs is provided in the sections below.

*Tin Mill Canal/Finishing Mills/Humphrey Impoundment*

The Humphrey Impoundment and the Tin Mill Canal/Finishing Mills Areas (HT SSA) were combined into one area for the RSC Study due to the proximity of these SSAs. As part of the RSC Study, the following work was conducted in the HT SSA: completion of sixteen (16) soil borings, cone penetrometer testing (CPT) at fifteen (15) locations, installation of thirty-one (31) piezometers, collection of water-level measurements, and groundwater sampling. During the N&E investigation, the following work was completed in the HT SSA: installation of five piezometers, vertical profile sampling, collection and analysis of groundwater samples from piezometers, collection of water-level measurements, and hydraulic conductivity testing.

According to the SWI RSC report, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and COPI list metals were detected in groundwater in the HT SSA. According to 2005 URS report, groundwater analytical results from the HT SSA and surrounding areas indicated the COPI VOC and SVOC impacts were generally confined to the area adjacent to the Tin Mill Canal in the shallow and intermediate groundwater zones. In addition, a limited number of COPI metals were detected in the shallow and intermediate groundwater zones. URS

concluded that the horizontal and vertical extent of COPI analytes in groundwater have been sufficiently defined for the HT SSA. However, it does not appear that this conclusion has been formally accepted by the regulatory agencies.

#### *Greys Landfill*

During the RSC Study, the following work was completed in the Greys Landfill SSA (GL SSA): completion of four soil borings, CPT analysis at eight locations, installation of eight piezometers, collection and analysis of groundwater samples, and collection of water-level measurements. During the N&E investigation, three additional piezometers were installed and the following investigative activities were completed: vertical profile sampling, collection of water-level measurements, groundwater sampling, and hydraulic conductivity testing.

According to CH2M Hill, analytical results for the RSC Study indicated VOCs and SVOCs were generally detected in shallow groundwater in the area of the GL SSA located downgradient of the closed hazardous waste cell. CH2M Hill also indicated that low-level concentrations of COPI metals were detected throughout the GL SSA. According to the 2005 URS report, COPI VOC and SVOC impacts were confined to the shallow groundwater zone near the northern portion of the GL SSA. URS also indicated there was a limited presence of COPI metals in the shallow and intermediate groundwater along the northern border of the GL SSA. URS concluded that the horizontal and vertical extent of COPI analytes in groundwater have been sufficiently defined for the GL SSA. However, it does not appear that this conclusion has been formally accepted by the regulatory agencies.

In 2005, work was initiated at Greys Landfill to stabilize slopes and control sediment release and surface runoff through the installation of sediment and storm water basins. The final slope stabilization measures and seeding were completed in 2008. According to MDE (2011), thirty-one (31) monitoring wells in the GL SSA have been sampled on a quarterly basis since July 2009 and the need for additional remediation will be determined based on results of the ongoing groundwater monitoring.

#### *Coke Point Landfill*

During the RSC Study, sixteen (16) soil borings were completed and sixteen (16) piezometers were installed in the Coke Point Landfill SSA (CP SSA). In addition, investigation activities included collection of water-level measurements and groundwater sampling. During the N&E investigation, the following investigative activities were completed: installation of seven

piezometers, vertical profile sampling, collection of the water-level measurements, hydraulic conductivity testing, and groundwater sampling.

The SWI RSC Study report indicates that VOCs, SVOCs, and COPI metals were detected in shallow and intermediate groundwater zones. According to URS, VOC and SVOC impacts (primarily benzene and naphthalene) to shallow groundwater were highest near the eastern boundary of the CP SSA. URS also indicated that low levels of metals were present at isolated locations in shallow groundwater within the CP SSA. URS concluded that the horizontal and vertical extent of groundwater impacts have been defined for the CP SSA. In addition, groundwater plumes and migration pathways have been defined to the extent practical along the shoreline. Re-grading, berming, and stormwater control measures have been implemented at Coke Point Landfill to restrict access, improve stability, and control stormwater runoff. However, it does not appear that these steps have been formally accepted or approved by the regulatory agencies.

#### *Coke Oven Area*

The following activities were completed in the Coke Oven Area during the RSC Study: completion of twenty-seven (27) soil borings, installation of twenty-seven (27) piezometers, collection of water-level measurements, and groundwater sampling. During the N&E investigation, the following work was completed: installation of sixteen (16) piezometers, vertical profile sampling, collection of the water-level measurements, hydraulic conductivity testing, and groundwater sampling.

According to the SWI RSC Study report, VOCs, SVOCs, and COPI list metals were detected throughout the Coke Oven Area. The most significant VOC concentrations were detected in shallow groundwater in the area of the former Benzol-Litol Plant. According to URS, VOCs and SVOCs (primarily benzene and naphthalene) have impacted the shallow and intermediate groundwater zones. In addition, COPI metals were detected sporadically in the shallow and intermediate groundwater zones. URS concluded that the horizontal and vertical extent of COPI analytes have been defined for the Coke Oven Area. However, it does not appear that this conclusion has been formally accepted by the regulatory agencies.

In addition, according to the DCC Report Coke oven gas was distributed throughout the Property by pipeline for use as fuel. As the coke oven gas cooled, condensate would drop out of the pipeline and be removed at drip legs located throughout the distribution system. The DCCR indicates that various volatile and semi-volatile chemicals may be present in these lines and further action was recommended. No obviously apparent drip legs were observed during the *site*

visit but according to interview comments by Mr. Vogler of MCM, drip legs had been present and used on the Property. The exact location of the various drip legs is currently unknown, but have been identified as Finding 257 as shown on **Table 1** and discussed further in **Section 9.0**.

#### 4.4.2.2 Interim Measures

##### *Rod and Wire Mill and Pipe Mill Area*

As an Interim Measure (IM), the Consent Decree requires that an existing remediation system at the former Rod and Wire Mill Sludge Bin Remediation Area continue to operate in an effort to reduce metal impacts in this area. This remediation area is located within the Rod and Wire Mill and Pipe Mill Area (Findings 131-164 on **Table 1**). The remediation system consists of a soil leaching system and a groundwater pump and treat system to address impacts of cadmium and zinc. Operation of the system is ongoing and annual reports for this IM have been submitted annually since 1997.

##### *Coke Oven Area*

Additional IMs were required by the USEPA and MDE in the former Coke Oven Area due to the presence of benzene and naphthalene in groundwater in that area. The following IMs have been proposed or implemented for each of the six cells in the Coke Oven Area:

- Cell 1 – Installation of an Air Sparge/Soil Vapor Extraction System (AS/SVE) in the former Benzol Processing area. This system is currently operational.
- Cell 2 – Installation of an AS/SVE system and groundwater pump and treat system to address a benzene plume in the former Coal Storage area. A work plan was approved for this IM on September 10, 2013 and the final design work is underway.
- Cell 3 - Installation of an AS/SVE system in the Cove area. This system is currently operational. In September 2013, USEPA and MDE approved plans to downsize the AS/SVE system.
- Cell 4 – In-situ Anaerobic Bio-Treatment in the former Coal Tar area. The bio-treatment in Cell 4 was discontinued in late 2013 and a modified remediation plan for installation of a dual-phase extraction (DPE) system was approved by USEPA and MDE.
- Cell 5 – Installation of a DPE system in the Turning Basin area. A work plan was approved for this IM in September 2013. Implementation and final design work is underway.

- Cell 6 – Light non-aqueous phase liquid (LNAPL) recovery at the former Benzol Processing area. This IM is currently being implemented.

#### 4.4.2.3 Corrective Measures Study Report

The Consent Decree requires that BSC submit a CMS Report to the USEPA and MDE. A proposed CMS Work Plan for the Coke Oven SSA was submitted to USEPA on April 13, 2013. CMS work plans have not been submitted for the remaining SSAs.

#### 4.4.2.4 Off-Shore Investigation

In February 2010, MDE approved an offshore sampling plan submitted by Severstal, the Property owner at that time. However, in March 2010, Severstal disputed its obligation to assess offshore impacts and filed a petition requesting that the District Court determine its liability under the Consent Decree. Following the Court's request, a "framework for performance of the off-shore portion of the SWI" to be conducted at Severstal's expense was agreed upon. However, in January 2014, it was determined by the Court that the 2012 bankruptcy sale order had extinguished Severstal/RG Steel's liability for investigation of off-shore releases of hazardous constituents.

Copies of select reports reviewed as part of this Phase I ESA are included in **Appendix F - Historical Records Documentation**. Weaver Boos identifies the various SWMU and AOCs at the Property as well as the known impacts present at the Property as Findings in connection with the Property as shown on **Table 1**.

#### 4.4.3 *Historical Use Information on Adjoining Properties*

Based upon our review of the aforementioned historical records, the northern adjoining property appears to have been developed by 1927 as farmland with some industrial buildings, which remained in this general condition today. By 2011, the northern adjoining properties included a golf course and industrial facilities. Old Road Bay adjoins the eastern edge of the Property and the Patapsco River adjoins the southern edge of the Property. The western adjoining property appears to have been developed by 1927 as a shipyard, and continues as a shipyard to the present day.

Based on our review of the aforementioned historical records, Weaver Boos has listed the operations at select industrial and commercial properties to the north and northeast of the Property as Findings in connection with the Property as shown on Table 1 and discussed further in **Section 9.0**.

## **5.0 SITE RECONNAISSANCE**

Weaver Boos representatives Ms. Chrystine Shelton and Mr. Steven Stanford conducted the *site visit* on February 19 through 21, 2014. Mr. Douglas Dorgan of Weaver Boos also participated on the morning and early afternoon *site visit* of February 20<sup>th</sup>. Weaver Boos representatives were accompanied on February 19<sup>th</sup> by Mr. Russell Becker, who was designated by Sparrow Point LLC as the *key site manager* for the Property. Mr. Brandon Bonanno, Environmental Manager of MCM and Mr. Michael Vogler, also of MCM, each accompanied the Weaver Boos representatives for approximately one half of each day on February 20<sup>th</sup> and 21<sup>st</sup>. During the *site reconnaissance*, weather conditions were characterized by periods of overcast skies, several brief periods of rain, a period of dense fog during the morning of February 21<sup>st</sup>, and several periods of fair and sunny conditions. Winds were calm to moderate and temperatures varied from approximately 40 to 60 degrees Fahrenheit during the three days. Approximately half of the ground surface was covered with snow on the morning of February 19<sup>th</sup> and continually diminished over the course of the three days. The following sections summarize our observations during the *site reconnaissance*.

### **5.1 Methodology and Limiting Conditions**

Weaver Boos' *site reconnaissance* methods included a *site visit* to *visually and/or physically observe* reasonably accessible locations of the Property in an effort to obtain information indicating the presence of *recognized environmental conditions* in connection with the Property. The *site visit* was conducted by automotive transportation to and between numerous stops where specific areas or facilities of the Property were traversed and observed on foot. Ms. Shelton and Mr. Stanford typically subdivided specific areas of interest and separately walked their routes to increase the coverage of their visual observations. Several structures or facilities on the Property such as the BOF Shop were partially demolished, unsafe to enter, and therefore observed from a distance. Some areas were under active demolition, such as the north end of the former 68-in Hot Strip Mill, and were similarly observed only from a safe distance. Given the size of the Property, Weaver Boos prioritized areas to observe while on-site in an effort to view those areas that had the highest potential for the presence of *recognized environmental conditions*. As a result, certain facilities, such as the Caster building, were observed only from their exterior because they were considered less likely by Weaver Boos and the *key site manager* to comprise locations where petroleum products or hazardous materials would have been released. Photographs taken to document conditions encountered at the time of the *site reconnaissance* are presented in **Appendix C – Photographic Documentation**. Weaver Boos also *visually and/or*



*physically observed* adjoining properties from reasonably accessible locations on the Property and public thoroughfares. Limiting conditions encountered at the Property during the *site reconnaissance* are included in **Section 1.5**.

## **5.2 General Site Setting and Observations**

Please refer to **Section 2.0** of this *report* for a description of the general site setting, adjoining public thoroughfares, utilities, and potable water supply and **Section 4.3** for a description of topographic and geologic/hydrogeologic conditions characterizing the Property.

During our *site visit*, Weaver Boos noted that the Property is largely unoccupied as a result of the termination of iron and steel-making activities in 2012. According to Mr. Becker, the majority of the former iron and steel-making facilities and other buildings or facilities were slated for demolition or had already been razed by the time of the *site visit* as explained by Mr. Becker. Several facilities were observed to be either partly demolished or under active demolition by MCM. Active operations being continued by Sparrows Point LLC were observed to include the HCWWTP (Findings 165-173 on **Table 1**) being used to treat discharges along the TMC consisting mainly of stormwater. The HCWWTP is comprised of various equipment including but not limited to settling basins (Finding 165 in **Table 1**), thickeners (Finding 166 in **Table 1**), aerators (Finding 167 in **Table 1**), chemical treatment (Finding 168 in **Table 1**) and an emergency detention basin (Finding 173 in **Table 1**). The settling basins are unlined, but according to Mr. Becker had been cleaned in 2003 or 2004, although no sampling data was provided. In addition, according to Mr. Becker the emergency detention basin is lined with a composite liner.

Greys Landfill was said by Mr. Becker to remain under intermittent joint operation by Sparrows Point LLC and MCM to receive demolition debris (including asbestos-containing materials) generated at the Property and also to receive approximately thirty (30) tons of sludge filter cake generated each week by the HCWWTP. No active waste deposition was observed at the Greys Landfill during the *site visit*. In addition, Mr. Becker noted the presence of County Lands #1A (Finding 256 on **Table 1**) located immediately east of Greys Landfill. This area was observed by Weaver Boos to be largely vacant with piles of materials during the *site visit*. According to interview comments made by Mr. Becker and Mr. Bonnano during the *site visit*, this area was a former contractor storage area and may have been historically used to dispose of unknown types and quantities of wastes.

The PBRR shop facility was observed to remain in operation for locomotive repair (Finding 268 on **Table 1**). Historically an old railroad repair building was located northeast of the steel

making area and repaired old locomotives (Finding 269 on **Table 1**). The Billet Record Building was seen flagged with asbestos warnings for intermittent continued use by MCM for the processing of certain asbestos-containing building materials generated during on-going demolition operations according to remarks by Messrs. Becker and Bonanno. Lastly, the main security building was being utilized for administrative offices, and a garage building was being used for refueling and maintenance activities (Findings 252-254 on **Table 1**). These facilities appeared to be reasonably operated and maintained, with no obviously apparent visible releases of petroleum products or hazardous substances. Remaining facilities on the Property are occasionally operated as needed to support MCM's demolition activities and according to Mr. Becker included the Chrome Recovery Plant located along the TMC and several material and storage warehouses throughout the Property. The Chrome Recovery Plant was inactive during the *site visit*.

The larger facilities remaining at the Property during the *site visit* were observed to be vacant and inactive, under salvage, under demolition, utilized for material storage, or without significant contents as follows:

- New Cold Mill – Vacant and inactive with mills and related equipment appearing to remain intact.
- Reservoir Warehouses – Material storage of refractory supplies, electrical, and other parts.
- In Process Storage Building (formerly occupied by DACS) – No significant contents.
- Central Records and Dietrich Building – Vacant and inactive.
- Former ATEC buildings and Carrier Express Terminal – Vacant and inactive, although buildings are being used for storage (Findings 240-241 on **Table 1**).
- Former Nelson Company facility – No significant contents.
- Former “Contractor’s Village” – Remaining buildings are mostly without significant contents; one building is used by MCM for material storage (approximately 100 intermediate bulk containers of liquid placarded as “dust suppressant”).
- Hot Strip Mills – Under salvage (68-in) or under demolition (56-in). Process equipment and materials are still in place at varying degrees of dismantling.
- Sheet Mills – Under demolition (partial). Process equipment and materials are still in place at varying degrees of dismantling.

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- Tin Mill – Under salvage. Process equipment and materials are still in place at varying degrees of dismantling.
- Brick Storage Building (Finding 265 on **Table 1**) – Material storage (large quantities of salvaged chemicals or other materials in intermediate bulk containers, drums, pails, or bags).
- Human Resources Building – Vacant and inactive.
- Former Maryland Pig Plant – Vacant and inactive.
- Pennwood Powerhouse Bulk Oil AST farm (Finding 266 on **Table 1**) – Storing up to 2 ft. of oil/water or an indeterminate quantity of water (ASTs owned by Sparrows Point LLC according to Mr. Becker).
- Main Office – Vacant and inactive.
- L Blast Furnace – Vacant and inactive (essentially intact, including supporting facilities).
- Pennwood Powerhouse – Vacant and inactive (essentially intact).
- Steam Station – Vacant and inactive.
- No. 1 BOF Shop – Under demolition (BOF vessels and upper building structure remain).
- Caster – Vacant and inactive (essentially intact as viewed from the exterior).

Many of the facilities listed above have been identified as Findings as shown in **Table 1**. In addition, select Findings are further discussed in **Section 9.0**. Of the buildings listed above, only the new Cold Mill, Reservoir Warehouses, and the PBRR building are scheduled to remain on the Property after the completion of demolition activities.

The former steel making area (Findings 174-204 on **Table 1**) includes portions of the land located north of the Coke Oven including but not limited to the Caster building, BOF facilities, desulfurization plant, and sulfur recovery plant. The blast furnace area (Findings 205-231 on **Table 1**) includes but is not limited to the former sinter plant, the former A-K Furnaces, the current L Furnace, RIW facilities, and the former pilot plant. Many of these features, such as those associated with the BOF Shop associated with the steel making area and the sinter plant associated with the blast furnace area, were removed from the Property by demolition before the *site visit* and could not be observed by Weaver Boos or were partially removed as described above. Weaver Boos observed or attempted to observe the general area where listed features were formerly located in such instances. In such general areas, Weaver Boos observed no

indications of an existing release. Several features did remain and were observed during the *site visit*, such as the Caster Baghouse and L Furnace, where Weaver Boos saw no indications of a current release above *de minimis* quantities.

During the *site visit*, the Pennwood Powerhouse was observed to contain large equipment, which had been shut down. Some staining of the equipment and under the equipment was observed. In addition, during the *site visit*, water was observed to have pooled on the floor of the Powerhouse. According to Mr. Vogler, at least one previous flood incident resulted in approximately ten (10) feet of water within the Powerhouse. The accumulated water reportedly drained through a hole in the floor, which leads to Pennbrook Canal, a manmade water feature, which eventually discharges to Old Road Bay (Finding 267 on **Table 1**).

Two other significant facilities, the former Air Products plant and Machine Shop No. 2, have been partly or wholly demolished and subsequently abandoned by their former operators before removing the resulting debris. Air Products (Findings 240-241 on **Table 1**) formerly supplied RG Steel with oxygen and nitrogen gas. Air Products appears to have salvaged selected equipment from the plant and initiated demolition after oxygen and nitrogen were no longer needed by RG Steel and then abandoned the facility with cold boxes cut open to spill their internal insulation onto the ground. This work was undertaken without a permit and subsequently halted by regulatory authorities according to remarks by Mr. Bonnano. The partly demolished plant was observed vacant and unoccupied during the *site visit*.

Machine Shop No. 2 (Findings 250-251 on **Table 1**) was demolished on behalf of RG Steel by a contractor who salvaged the more valuable components of the building and then abandoned the resulting debris in several piles across this part of the Property, according to Mr. Bonanno. Apparent asbestos-containing debris was observed in at least one of the still exposed debris piles during the *site visit*. Weaver Boos understands that the abandoned debris is the subject of a current enforcement action by the MDE to be remedied and resolved by the combined efforts of Sparrows Point LLC and MCM as stated by Mr. Becker. In addition, according to comments by Mr. Bonnano pits containing oily water are also present in the Machine Shop No. 2 area, although were not observed by Weaver Boos at the time of the *site visit*.

The southeastern part of the peninsula, historically used for miscellaneous material storage, is currently occupied by Lafarge, an international producer of cement, aggregate, and concrete products. Lafarge's website (cached) states that its facility was originally constructed between 1980 and 1982 by the Atlantic Cement Company to produce cement from water granulated blast furnace slag sourced from the then-operating L Furnace. The water granulating plant is located

just north of the L Furnace. Weaver Boos was unable to gain access to the interior of the Lafarge buildings but was able to observe the exterior of the buildings and structures associated with the facility. Lafarge's on-going operations were observed to include the bulk storage of slag, granulated slag, sand, or similar-appearing materials in outside stockpiles. Lafarge's active operations appeared to include the handling and transportation of these materials and operation of what appears to be a batching plant located near the southeast corner of the Property. Lafarge's facilities appeared to be reasonably operated and maintained, with no obviously apparent releases of petroleum products or hazardous substances during the *site visit*.

Kinder Morgan Terminals partly occupies the southwestern portion of the peninsula as the Chesapeake Bulk Stevedores Sparrows Point, MD Terminal. Kinder Morgan's activities include warehousing and approximately 100 acres of bulk yard storage of commodities such as coke, pumice gypsum, granulated slag, ferro alloys, manganese ore, ferro silicon, steel coils, and break bulk cargos according to its website. These commodities are transported into and out of the facility via surface water transport to and from the Chesapeake Bay, by rail (CSX and Norfolk Southern railways), and by over-the-road truck. Weaver Boos was unable to gain access to the interior of the Kinder Morgan building but was able to observe the exterior of the building and structures associated with the facility. Kinder Morgan Terminal's facilities appeared to be reasonably operated and maintained, with no obviously apparent releases of petroleum products or hazardous substances observed during the *site visit*. However, a pile of oily mill scale is present west of the Kinder Morgan offices (Finding 130 on **Table 1**).

Visual indications of historical facilities and activities were observed at many locations on the Property consistent with its extended history of iron and steel making since 1887. These include several current and former rail yards (Findings 244-247 on **Table 1**) and many of the smaller remaining buildings associated with recent industrial operations exhibit early architecture. The known or potential presence of petroleum products or hazardous substances released to the environment associated with the Property industrial activities and inferred from the following observations during the *site visit* have been identified as multiple Findings as outlined in **Table 1**.

The southeast-central portion of the Property remains served by a system of roads and streets originally constructed as part of Bethlehem Steel's company town of Sparrows Point that historically housed workers and their families. The potential presence of historical motor fuel or heating oil storage facilities) and releases therefrom is inferred by association with typical urban

or suburban development (Finding 271 on **Table 1**). Tanks identified as being associated with the town were also identified in **Section 4.4.1.2**.

Numerous buildings and facilities were already demolished and removed by the time of the *site visit* as explained by Messrs. Becker, Bonanno, and Vogler. Land in most areas where demolition had been completed was observed vacant and typically strewn with at least minor quantities of remaining demolition debris. Larger buildings or facilities included on historical facility drawings or aerial photographs that were seen to have been razed and removed during the *site visit* included the former Rod & Wire Mill, former Pipe Mills, Tin Mill, parts of the Sheet Mill, parts of the Hot Strip Mills, Contractor's Village (although several buildings were observed to remain), Primary Rolling Mills (Findings 232-239 on **Table 1**), Ladle House, Former Open Hearth Shops, Gas Pumping Station, Gas Blowing Engine, Gas Engine House, Electric Storage Building, H Furnace, J Furnace, Sinter Plant, Coke Batteries, A Coal Chemical Plant, B Coal Chemical Plant, and the Benzene/Litol Plant which were generally part of larger areas discussed previously. Many of these facilities have been identified as Findings as shown in **Table 1**. In addition, select Findings are further discussed in **Section 9.0**.

Please refer to **Section 2.5** for a summary *adjoining properties* occupants and uses identified during our *site reconnaissance*. The following sections summarize Weaver Boos' more specific *site reconnaissance* observations.

### **5.3 Interior and Exterior Observations**

#### *5.3.1 Hazardous Substances and Petroleum Products in Connection with Identified Uses*

Several thousand materials, supplies, or chemical products containing hazardous substances or petroleum products would have been utilized at a facility such as the former RG Steel works to support production and maintenance based on Weaver Boos' knowledge of the historical processes utilized at the Property. Active use of most of these materials would have ended with the termination of iron and steel production at the facility. Several types of chemicals were observed to be stored or used to support limited continuing operations (e.g., waste water treatment), and a large number of chemical containers were observed in storage at several locations on the Property. Many of the chemical containers had been salvaged by MCM prior to demolition and placed into storage at the Brick Storage Building based on remarks by Mr. Bonanno. Below is a representation of select chemicals Weaver Boos observed to be stored or used on the Property during the *site visit*:

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<b>CHEMICALS USED OR STORED</b>		
<b>Type of Chemical</b>	<b>General Location</b>	<b>Estimated Quantity</b>
Sulfuric acid	HCWWTP	10,000 gal.
Sodium hydrosulfide	HCWWTP	5,000 gal.
Hydrated lime	HCWWTP	5,000 gal.
Ferrous chloride	HCWWTP	5,000 gal.
Refractory cement	Reservoir Warehouse	50,000 lbs.
Dust suppressant	“Contractor’s Village”	27,500 gal.
Miscellaneous	Former Brick Storage Building	25,000 gal./100,000 lbs.
Antifreeze	PBRR Shop	10,000 gal.
Lubricating oil, hydraulic oil, waste oil, or grease	ASTs or containers observed at most intact facilities at the Property	100,000 gal. (est. aggr.)
Gasoline	Garage AST	1,000 gal.
Diesel fuel	Garage AST	10,000 gal.
Benzolized wash oil	Containers at COA, storing free product recovered from subsurface	1,000 gal.
“Hazardous Materials”	ATEC Facility	3,000 gal. (est. aggr.)
Soda ash	New Cold Mill	2,000 lbs.
Janitorial and cleaning supplies	Inside several remaining buildings	5,000 lbs. (est. aggr.)

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According to Mr. Vogler, chemicals stored at the HCWWTP are used in the water treatment process. Chemicals at that facility are typically stored in areas with secondary containment and exhibited no obvious visual indications of a release. Refractory cement and similar chemicals stored at the Reservoir Warehouse were observed in closed containers or bags with no obvious visual indications of release(s). Dust suppressant stored by MCM at the Contractor's Village was observed in intermediate bulk containers with no obvious visual indications of releases. Miscellaneous chemicals salvaged and stored in intermediate bulk containers, drums, pails, and bags were observed to be stored in the former Brick Storage Building without obvious visual indications of release(s). Antifreeze and other chemicals such as lubricating oils were observed stored or used with no significant irregularities at the PBRR shop in connection with continuing locomotive repair activities.

Aboveground tanks labeled "Lubricating Oil," "Hydraulic Oil," "Waste Oil" or "Grease," were observed at several locations on the Property to exhibit visible indications of releases such as surface staining beneath the grease AST at the L Furnace. As a result, select instances of these observed releases have been identified as various Findings for the Property as shown in **Table 1**. Two of the ASTs labeled "waste oil" located on bridges above the TMC were seen leaking during the *site visit*, which Weaver Boos has also identified as a Finding in connection with the Property as shown in **Table 1**.

Gasoline and diesel fuel stored in ASTs at the Garage were observed with either secondary containment or double-wall construction with no obvious visual indications of a release. Benzolized wash oil is the primary non-aqueous phase liquid (NAPL) being recovered by Interim Measures at the Coke Oven Area as stated by Mr. Becker. The benzolized wash oil is accumulated in containers. No obvious visual indications of a release were observed during the *site visit*. Two large waste ASTs placarded "Waste Oil" operated by Lafarge appeared to be in good condition, located within secondary containment basins, and exhibited no obvious visual indications of a release.

In addition to those mentioned above, a large number of drums and ASTs are located throughout the Property and on the bare ground surface. The vast majority of these containers are said to be empty and no obviously apparent damage, leaking, or staining on or around the observable containers was noted during the *site visit* (Finding 263 on **Table 1**).

Soda ash was observed to be stored in bags on a pallet inside the New Cold Mill. These bags were observed in good condition with no visual indications of a significant release. No



irregularities were observed in connection with janitorial supplies stored inside several of the buildings that remained at the Property during the *site visit*.

During the *site visit* an area located in the former hot mill was observed to be marked with a radioactive materials placard. According to Mr. Vogler and Mr. Bonnanno, the materials had previously been removed and containerized and are currently stored in a vault in the former Dietrich building. The vault appears to be in good condition with no obviously apparent leaking or staining and according to Mr. Bonnanno is approved by the MDE. The radioactive materials have been identified as Finding 264 as shown on **Table 1** and discussed further in **Section 9.0**.

Wastes observed being generated during the *site visit* resulted mainly from demolition activities and the continuing operations of the HCWWTP. Below are a representation of select waste materials Weaver Boos observed to be generated on the Property during the *site visit*:

<b>WASTE GENERATION</b>			
<b>Type of Waste</b>	<b>General Location</b>	<b>Disposal Contractor</b>	<b>Approximate Quantity</b>
Waste oil	ASTs at Lafarge	Unknown	20,000 gal. (est. aggr.)
Waste oil	ASTs at TMC	Unknown	Two 2,000-gallon ASTs
Waste oil	Varies	Unknown	30,000 gal. (est. aggr.)
Demolition debris	Active demolition locations (56-in Hot Strip Mill and others)	For disposal at Greys Landfill as stated by Messrs. Becker and Bonanno	Several truck loads per week
WWTP sludge filter cake	HCWWTP	For disposal at Greys Landfill as stated by Mr. Becker	30 tons/week
General Refuse	Security office and miscellaneous locations	Cockey's	Varies

The waste oil ASTs were generally observed to be in good condition although minor spillage and staining was observed around them. According to Sparrows Point LLC, the ASTs at the TMC were used to store oil recovered and skimmed directly from the TMC and are currently empty. These ASTs are scheduled to be demolished in the future. However, during the *site visit* the ASTs at the TMC were observed to be actively leaking with corroded secondary containment resulting in waste oil discharging directly to the TMC. Demolition debris piles were located in active demolition areas such as near the 56-inch Hot Mill Strip Mill. Smaller remnants of debris were located throughout the Property where demolition had been completed. Sludge filter cake at the HCWWTP is stored at the facility prior to being sent to Greys Landfill for disposal. General refuse is collected in dumpsters primarily located around the security office and in areas where general maintenance activities occur. The dumpsters appeared to be in good condition with no stains or leaks.

### 5.3.2 *Storage Tanks*

#### 5.3.2.1 Underground Storage Tanks (USTs)

Weaver Boos observed no obviously apparent surficial indications of USTs (e.g., fill pipes, vent lines, or manways) on the Property during the *site visit*. However, please note that the presence of snow, equipment, and materials as well as active demolition activities limited site observations during the *site visit*. According to interview remarks by Mr. Becker, to the best of his knowledge, all regulated USTs were previously closed or removed from the Property aside from septic tanks.

Information provided by Mr. Becker relative to the removal of former USTs consisted of the June 1992 report by Geraghty & Miller, Inc. entitled “Closure of Underground Storage Tanks, Bethlehem Steel Corporation, Sparrows Point Plant, Sparrows Point, Maryland. According to this report, twelve (12) USTs formerly located at the Property were “closed” between November 1989 and March 1990. Eleven were removed from the ground while a 10,000-gallon lubricating oil UST was closed in place at the Pennwood Power Station. These USTs were formerly located as follows according the Geraghty & Miller, Inc. report:

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<b>FORMER USTs REPORTED CLOSED (NOVEMBER 1989 TO MARCH 1990)</b>			
<b>Location</b>	<b>Capacity (gal.)</b>	<b>Contents</b>	<b>Max. TPH Soil or Groundwater Conc. at Closure</b>
#2 High Head Pumping Station	2,500	#2 Fuel Oil	Non-Detect
Spare Parts Yard	1,000	#2 Fuel Oil	<b>14,000</b> mg/kg
Masons Garage-1	10,000	Gasoline	160 mg/kg
Masons Garage-2	500	Waste Oil	<b>29,900</b> mg/kg 2,650 mg/l
Masons Garage-3	500	Waste Oil	<b>29,900</b> mg/kg 2,650 mg/l
Truck Dock 51A	10,000	#2 Fuel Oil	62 mg/kg 52 mg/l
Truck Dock 33	750	Gasoline	<b>12,800</b> mg/kg
Human Resources Bldg.	1,000	#2 Fuel Oil	390 mg/kg
One Spot Car Fuel	10,000	Diesel Fuel	<b>1,100</b> mg/kg
68-in Hot Strip Mill	8,000	#2 Fuel Oil	<b>11,400</b> mg/kg 1,080 mg/l
Electrical Repair Shop (ERS)	10,000	Oily Water	390 mg/kg 77 mg/l
Pennwood Power Station	10,000	Lubricating Oil	Passed Petro Tite

Weaver Boos observed the area of the former Masons Garage USTs and saw no indication of their former presence (Finding 254 on **Table 1**). Otherwise, the former UST locations listed above were not specifically observed. The MDE lists 620 milligrams per kilogram (mg/kg) as the cleanup standard for non-residential land use in its June 2008 Interim Final Guidance (Update 2.1), indicating the remaining concentrations of TPH detected during closure of the USTs at the Spare Parts Yard, Masons Garage, Truck Dock 33, One Spot Car Fuel, and 68-in Hot Strip Mill represent Finding 275 for the Property as shown in **Table 1** and further discussed in **Section 9.0**. Such results are bolded in the preceding table.

Weaver Boos also observed an area of storage buildings which make up the former Contractor's Village east of the Eastern rail yard. This area was historically used by subcontractors to the steel mill for equipment repairs and storage. According to Mr. Vogler, a diesel fuel UST was once located along the east edge of Contractor's Village and had previously been removed although it is not listed in the above table (Finding 270 on **Table 1**).

According to the October 2003 Oil Control Program Underground Storage Tank Facility Certificate of Registration provided by Mr. Russ Becker, the following USTs were abandoned-in-place during the time period from 1980 to 1994:

- 5,000-gallon No. 2 Oil UST at the Door Repair Station;
- 8,000-gallon gasoline, 2,000-gallon gasoline, and three 10,000-gallon diesel USTs at the Plant Garage;
- 10,000-gallon lube oil UST at Penwood Power;
- 10,000-gallon gasoline at Hot Strip Mill;
- 1,000-gallon No. 2 Oil at No. 1 High Head;
- Two 20,000-gallon and one 12,000-gallon No. 4 oil USTs at Central Warehouse West;
- Two 10,000-gallon gasoline USTs at Pat Ward's;
- 10,000-gallon No. 2 oil UST at the Strand and Cable; and
- 1,000-gallon gasoline UST at Mason's Garage

Additionally, a 12,000-gallon gasoline UST was listed as in service at the Plant Garage in October 2003, although according to Mr. Becker this UST has since been removed. As mentioned in **Section 4.2.2**, a 1999 list of ASTs and USTs at the facility was included in the records provided by MDE. Based on this list, a general summary of the tank list was prepared and is included in **Appendix E**. Several of the above USTs appear to be listed on this general summary; however, it is uncertain since the tank identification numbers on the records provided by Mr. Becker are inconsistent with the tank numbers on the 1999 tank list. In addition, some of

these USTs may correspond with tanks on the general summary with “unknown” information since they were closed before 1999. Additional documents provided by Mr. Becker indicate a 550-gallon waste oil UST was removed from the Pat Ward service station on July 8, 2008. Although there was evidence of a possible release, the Oil Control Program did not require any further corrective action.

In addition, based on information provided in the ERIS Report and as described in **Section 4.1.1** and **4.1.2**, numerous USTs may have been or are currently located on the Property under various facility names and addresses. The ERIS Report describes up to a total of thirty-four (34) USTs, although it is unclear if each of the listings describe unique USTs. According to documents provided by the Baltimore County Department of Permits, Approvals, and Inspections, only one UST has been removed and one abandoned in place. No other UST removals or abandonments are reported in the County records. Based on the tank numbering on the 1999 list provided by MDE, it appears that up to 810 tanks (USTs and ASTs) may have existed at the facility over the course of the operational history at the facility. Information regarding which tanks were USTs versus ASTs was not provided in the 1999 list. MDE also provided records documenting that 11 USTs located in the Construction Village had been removed as of May 11, 2005 and three USTs were currently in use. Another Certificate of Closure issued April 5, 1999 documents that two USTs were removed at The Arundel Corporation at the Concrete Plant. Weaver Boos has identified the USTs where their locations have not been identified, including those listed in the above table, ERIS Report, and FOIA documentation along with the reported elevated TPH concentrations in association with select USTs as Finding 275 shown in **Table 1** and further discussed in **Section 9.0**.

#### 5.3.2.2 Aboveground Storage Tanks (ASTs)

Weaver Boos noted the presence of numerous ASTs labeled for the storage of various oils, greases, acids, and other petroleum products or hazardous substances on the Property during the *site visit*. Weaver Boos observed that the apparent condition of the ASTs ranged from very good to poor, and that many were empty with open access ports. The interiors of containment structures or the ground surface beneath select ASTs exhibited visible oily surface staining representing Findings for the Property as shown in **Table 1**. Two used oil AST was observed leaking into the TMC as previously discussed in **Section 5.3.1**.

During the *site visit* Weaver Boos observed an apparent tank farm located east of the blast furnace and north of the Pennwood Powerhouse. This area is also known as the Pennwood Tank Farm and had held fuel oil and recycled oils. Currently the ASTs are largely empty although a

residual quantity of up to two feet of oil/water may be present according to Mr. Becker. No obviously apparent leaks or staining were observed during the *site visit*. This tank farm has been identified as Finding 266 for the Property as shown in **Table 1** and further discussed in **Section 9.0**.

In addition to those mentioned above, a large number of drums and ASTs are located throughout the Property and on the bare ground surface. The vast majority of these containers are said to be empty and no obviously apparent damage, leaking, or staining on or around the observable containers was noted during the *site visit* (Finding 263 on **Table 1**).

The former RG Steel, LLC SPCC Plan dated December 2011 reviewed by Weaver Boos listed approximately 132 ASTs for petroleum products or waste oil. Their aggregate capacity was not listed in the SPCC Plan, but is estimated by Weaver Boos at approximately 5,000,000 gallons. The 2012 Inventory of Above Ground Storage Tanks, a spreadsheet lists forty-six (46) ASTs with a capacity of greater than 500 gallons each that stored hazardous substances exclusive of oil. The contents of these ASTs included chemicals such as spent pickle liquor, polyphosphate, phosphoric acid, bleach, sodium hydroxide, sodium bisulfite, plating solution, sulfuric, and hydrochloric acid. Several of these ASTs were not seen during the *site visit* because they were removed during the ongoing demolition process as stated by Mr. Bonanno. Select ASTs have been identified as Findings and are shown in **Table 1**. **Appendix E – Environmental Records and Interview Documentation** includes photographs from 2009 of what appear to be all or most of the oil ASTs on the Property at that time. Also included are copies of the AST listings excerpted from the SPCC Plan and 2012 inventory providing additional detail as to the size, location, and contents of these ASTs.

### 5.3.3 Odors

In the absence of significant industrial production activity, no unusual or prominent odors were discerned on the exterior of the Property during the *site visit*. The interior of several buildings including the former Hot Mill, Tin Mill, and Cold Mill, as well as the new Cold Mill and several storage warehouses exhibited a metallic or light petroleum odor typical with steel manufacturing facilities. According to Mr. Vogler, the used oil recovery plant located just north of the Tin Mill was a historical source of disagreeable odors when it was poorly operated by a particular entity in the past.

#### 5.3.4 Pools of Liquid

Weaver Boos observed numerous pools of liquid water appearing to originate as snow melt and rain at many locations on the Property during the *site visit*. Such pools exhibited either an oily sheen, or partial cover of oil, such as within the containment curb beneath the L Furnace stoves in several areas. The majority of the pools exhibiting a sheen were small in size at roughly 2-feet by 2-feet or smaller. Select larger oily pools of water have been identified as Findings and are shown in **Table 1**. No pools of non-aqueous liquid or apparent chemicals were observed during the *site visit*.

#### 5.3.5 Pits, Ponds, and Lagoons

Weaver Boos observed apparent pits, ponds, lagoons, or similar features at several locations on the Property. The Tin Mill wet well was observed in the basement of the Tin Mill to exhibit a noticeable oily sheen. This pit is continuously pumped at a rate of approximately twenty (20) gallons per minute to remove inflowing groundwater and to keep the Tin Mill Halogen line basement (located below sea level) dry according to remarks by Mr. Vogler during the *site visit*. Pumping of the basements beneath similar mill buildings was a typical operational practice as also remarked by Mr. Vogler. Weaver Boos infers from Mr. Vogler's comments that the Halogen Line basement (and similar mill basements) typically operated as groundwater sinks, which Weaver Boos has identified as a Finding for the Property as shown in **Table 1**.

During the *site visit*, Weaver Boos observed the TMC, a surface water feature significant for the regulatory scrutiny it has received since the 1980s. The TMC is an approximately 7,300 foot long canal approximately thirty (30) to fifty (50) feet wide at the bottom. The Tin Mill and adjoining sheet mills and Hot Strip Mill historically discharged contact wastewaters and stormwater through sewer pipe systems to the TMC. The TMC historically conveyed these waters to the HCWWTP prior to discharge to surface water through a NPDES permitted discharge outfall. Sediments containing metals, oil and grease, have accumulated over time, leading to Weaver Boos' observation of oily-appearing sediment along its banks and frequent oily sheens observed flowing downstream towards the treatment plant. Based on data provided within historical environmental reports reviewed as part of the Phase I ESA, surrounding groundwater has exhibited elevated concentrations of metals, oil and grease and select organics. As noted previously the TMC is a SSA with multiple Findings as shown on **Table 1**.

The HCWWTP Emergency Detention Basin is a surface impoundment-like lagoon observed by Weaver Boos during the *site visit*. This basin was constructed after 2002 as a bypass system to be used during periods of treatment upsets, should they occur. Approximately 2.5 acres in size,

the basin was observed to contain what appeared to be several thousand cubic yards of sediment or WWTP sludge. The basin is constructed with a composite liner according remarks by Mr. Becker. The sediment or sludge is presumed to contain petroleum products or hazardous substances held within the structure and therefore has been identified as Finding 173 for the Property as shown in **Table 1** and discussed further in **Section 9.0**.

The HCWWTP itself includes several structures to impound or aerate flows through the system. Part of Basin No. 2 was observed to apparently remain, Basin No. 3 was observed to apparently remain in its entirety, and the aeration basins immediately upstream from the treatment plant were observed to be operating during the *site visit*. These basins historically contained and may contain TMC sediment or WWTP sludge and as a result have been identified as a Finding for the Property as shown in **Table 1**.

The areas occupied by the historical Northeast Pond and East Pond at the former Rod & Wire Mill were observed to be filled during the *site visit*. The ground surface in both areas appeared level and covered with soil, indicating that neither historical pond currently remains. The area occupied by the historical Humphrey Impoundment was observed during the site visit as appearing covered with either forest vegetation or phragmites reeds during the *site visit*. These items have been identified as Findings as shown in **Table 1**.

#### 5.3.6 Drums

Weaver Boos observed apparent drums ranging from 55-gallons to 5-gallons in size at several locations on the Property during the *site visit*. Several drums were typically present inside at least one structure at each intact facility that was entered. The flammable materials building at the partly demolished Air Products plant contained approximately ten (10) to fifteen (15) drums bearing the labels of lubricating products or manufacturers, or were otherwise labeled. Another building at the Air Products plant contained ten (10) to fifteen (15) drums labeled “zeolite molecular sieve” or similar. The Reservoir Warehouse contained many drums (particularly 5-gallons in size), appearing to be most frequently labeled as a refractory cement or related product. Ten (10) to fifteen (15) drums labeled mainly as lubricants were observed in the In Process Storage Building (DACS Building). Numerous drums were observed being stored in the Brick Storage Building by MCM according to remarks by Mr. Bonanno. Approximately twenty (20) to fifty (50) drums labeled mainly as lubricants were observed to be stored or in use at the PBRR Shop in connection with continuing locomotive maintenance activities. Several drums were observed in most of the intact mill buildings. These were most frequently labeled as containing a variety of lubricants. Additional drums were noted in former tenant spaces such as



the ATEC facility and associated with current tenants. With the exception of *de minimis* staining on the floors beneath several areas, no obviously apparent releases of petroleum products or hazardous substances were observed in connection with these drums during the *site visit*.

Historical information regarding drum storage at the Property is excerpted from the former RG Steel, LLC SPCC Plan dated December 2011, listing the locations where oil-containing drums were historically kept. **Appendix E – Environmental Records and Interview Documentation** includes a copy of the Oil Drum Inventory excerpted from the SPCC Plan listing approximately 307 oil drums historically kept at the following seven locations on the Property:

- Oil and Grease Storage Room at northwest corner of the New Cold Mill
- Coil storage inside Truck Dock 12 at the 68-in Hot Strip Mill
- Tin Mill, at the Machine Shop Truck Dock Door 74A
- BOF Shop Truck Dock 416
- L Furnace Truck Dock 438
- L Furnace Blower Building Dock 38/39
- No. 2 Machine Shop Truck Dock 290

Many of the locations listed above have been identified as Findings as shown in **Table 1**. In addition, select Findings are further discussed in **Section 9.0**.

### *5.3.7 Hazardous Substance or Petroleum Product Containers*

Drums containing hazardous substances or petroleum products are discussed above in **Section 5.3.6**. Solid products contained in bags or sacks, and liquid products contained in intermediate bulk containers (typically 275 gallons in size), were also observed to be stored in several of the same locations as previously discussed in **Section 5.3.1**.

### *5.3.8 Unidentified Substances Containers*

Weaver Boos did not observe a significant number of apparent unidentified substance containers was observed on the Property during the *site visit*. Except for an occasional use as a trash receptacle, essentially all containers were labeled as to their contents, or were observed to be empty.

### 5.3.9 Polychlorinated Biphenyls (PCBs)

Although a detailed review of all suspected PCB-containing equipment is beyond the scope of this Phase I ESA, Weaver Boos conducted a limited evaluation of the Property in an effort to identify the presence and condition of electrical or hydraulic equipment that is known to or is likely to contain PCBs in insulating or lubricating materials which may be an environmental concern. PCB-containing equipment and any of its leaked material that may have impacted the Property could be subject to certain regulatory requirements, such as the Federal Toxic Substances Control Act (TSCA), in addition to being identified as a potential *recognized environmental condition* for the Property.

Weaver Boos observed electrical transformers at numerous locations on the Property during the *site visit*. Mr. Becker explained that facilities at the Property formerly included approximately 28 PCB transformers, the majority of which have been removed and managed as part of the continuing site demolition process. He further stated that two of the approximately 28 PCB transformers remain in service. **Appendix E – Environmental Records and Interview Documentation** includes a copy of the Main Transformer Inventory excerpted from the SPCC Plan listing approximately 420 transformers currently or historically operated at their numerous locations on the Property. Select transformers described above have been identified as Findings 248 and 249 as shown in **Table 1** and further discussed in **Section 9.0**.

### 5.3.10 Stains or Corrosion

Weaver Boos observed most hard surfaces at the Property to exhibit at least some indication of stains or corrosion during the *site visit*, a condition not unexpected considering the age of the facility and the nature of its historical operations. The staining in these areas were largely *de minimis* in nature, although select instances of larger stained areas are shown in **Table 1**. In many areas, stains appeared to result from a deposition of dust and fine particulate commonly deposited during historical operations. Oily materials were present on equipment throughout the Property such as in the hot mill, cold mill, tin mill, rolling mill, and L Furnace and are also shown on **Table 1**. Metal structures exhibiting varying degrees of corrosion were observed during the *site visit*. However, Weaver Boos does not believe these corroded structures represent a Finding in connection with the Property, except for the corrosion observed to be associated with the leaking used oil AST above the TMC as previously discussed in **Section 5.3.1**.

### *5.3.11 Drains and Sumps*

Weaver Boos observed drains and sumps at numerous locations on the Property during the *site visit*. Stormwater is drained from the surface of the Property by an extensive system of catch basins and storm drains, several of which discharge internally to the TMC, and many of which discharge externally at NPDES permitted outfalls to the Patapsco River, Bear Creek, Old Road Bay or Jones Creek. No irregularities or obviously apparent releases to the stormwater drainage system were observed during the *site visit*.

Many of the remaining and historical mill and related buildings at the Property were observed to include basements drained by sumps. The basement, sump, and wet well located beneath the Halogen Lines of the Tin Mill were observed to exhibit considerable evidence of oily stains on the floor and walls. In addition, some of the floor and walls beneath the Halogen Lines of the Tin Mill near, but separate from, the sump pit were also stained with a blue chemical residue said to consist of chromium ferrocyanide by Mr. Vogler who added that testing of the blue staining indicated that it did not exceed regulatory thresholds for a characteristically hazardous solid waste. According to Mr. Becker, secondary containment is present near the blue-stained walls and floors and this areas is isolated from any sumps which lead to the TMC. Based on the historical use of hexavalent chromium at the Halogen Lines they have been identified as a Finding as shown on **Table 1**. Mr. Vogler also said that similar basements and sumps beneath several other mills were even more heavily stained with oil, particularly where animal-based lubricants were historically used. He indicated that such lubricants are particularly prone to adhering to walls and other surfaces. Due to access constraints associated with ongoing demolition activities at the Property, these areas were not observed during the *site visit*.

### *5.3.12 Stained Soil or Pavement*

Weaver Boos observed exposed surface soils exhibiting at least some indications of staining resulting from historical activities in the production areas throughout much of the Property during the *site visit*. However, the majority of this staining was observed to be *de minimis* in size and nature, and therefore would not represent a Finding for the Property unless shown otherwise in **Table 1**. No prominent staining of paved surfaces was observed during the *site visit*.

### *5.3.13 Stressed Vegetation*

Weaver Boos observed that essentially all vegetation present at the Property was stressed by late winter weather conditions during the *site visit*. Many areas of the Property appeared to support little or no vegetative growth due to being covered with stockpiled materials such as slag. In a

few areas, such as along the banks in most of the TMC, little or no vegetation was observed in the oily or greasy sediment. The significance of this observation is previously discussed in **Section 5.3.5**.

#### *5.3.14 Solid Waste*

Weaver Boos observed solid waste being generated during the *site visit* including the production of demolition debris and waste water treatment plant sludge during the operation of the HCWWTP. Remarks by Messrs. Becker, Bonanno, or Vogler indicate that such materials are routinely collected and disposed of at the Greys Landfill as discussed in **Section 5.3.1**. In addition, apparent fly dumping was observed on the Property mainly along roads outside of the main facility and in the vacant and unmonitored areas. The materials consisted largely of general refuse, household equipment, and boats and have been identified (Finding 260 on **Table 1**). In addition, during the *site visit* large piles of slag were observed along the southeastern portion of the Property. Some of the piles were undergoing sorting by Fritz and were observed to contain unknown quantities of demolition or other debris (Finding 262 on **Table 1**). The items identified as Findings are shown in **Table 1** and further discussed in **Section 9.0**.

#### *5.3.15 Wastewater, Wells, Septic Systems*

Sanitary wastewater was explained by Mr. Becker to discharge to a sanitary sewer system that serves the Property and then to the City of Baltimore's publicly owned treatment works (POTW) during the *site visit*. Weaver Boos observed no obvious visual indication that wastes other than sanitary were being discharged to this system. Numerous groundwater monitoring wells were observed distributed across most of the Property. These are utilized as part of the ongoing RCRA Corrective Action activities being implemented by Sparrows Point LLC as remarked by Mr. Becker. Several historical groundwater supply wells were also reportedly present at the Property by Mr. Becker who also stated that there are no underground injection wells currently or historically utilized for liquid waste disposal at the Property. No septic systems were observed during the *site visit* and Mr. Becker stated that none are present. Several underground sanitary waste water collection tanks are present in areas of the Property not served by the sanitary sewer system according to remarks by Mr. Becker. In addition, according to interview comments by Mr. Becker and information provided during discussions with Ms. Barbara Brown of the MDE, no deep well injection activities have taken place at the Property.

## **6.0 ADDITIONAL SERVICES**

According to ASTM E 1527–13, there are certain constituents of potential environmental concern not necessarily covered by CERCLA’s “all appropriate inquiries”, which are considered “additional services”. As such the *user* may choose not to include these items. ASTM identifies these items as follows:

- Suspect Asbestos-Containing Materials;
- Biological Agents;
- Cultural and Historic Resources;
- Ecological Resources;
- Endangered Species;
- Health and Safety;
- Indoor Air Quality (unrelated to releases into the environment);
- Industrial Hygiene;
- Lead-Based Paint;
- Lead in Drinking Water;
- Mold;
- Radon;
- Regulatory Compliance; and
- Wetlands.

For the purpose of this Phase I ESA, these items are therefore excluded from this Phase I ESA unless any item has been specifically selected by the *user*. No additional services were requested by the *user* as part of this Phase I ESA. However, while not requested by the *user*, Weaver Boos observed suspect asbestos containing materials in the form of friable debris piles staged near the Machine Shop #2 area (Finding 250) as well as exposed cold box insulation near the Air Products facility (Finding 242) during the *site visit*, and as a result, noted their presence within this report. In addition, non-friable suspect asbestos containing materials in the Reservoir Warehouses have been identified as Finding 258 as shown on **Table 1** and discussed further in **Section 9.0**. Asbestos abatement activities are also currently ongoing in other buildings at the Property prior to their demolition. However, it is

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important to note that Weaver Boos did not conduct a visual suspect asbestos containing material survey at the Property as part of this Phase I ESA.

## **7.0 INTERVIEWS**

Weaver Boos representative Ms. Chrystine Shelton and/or Mr. Steven Stanford conducted *interviews* of select individuals possessing knowledge of the current and past Property uses in an effort to obtain information concerning the potential presence of *recognized environmental conditions*. Such individuals consist of persons or local agency officials that may have records or knowledge of events or conditions that are not evident during the *site reconnaissance* or records review.

### **7.1 Interview with Owner and Key Site Manager**

Weaver Boos interviewed Mr. Russell Becker and Mr. Mike Vogler of Sparrows Point LLC identified by the *user* as the representatives of the *owner* of the Property and *key site managers* for the Property, concerning the current and past use of the Property, the facility operations, and recent improvements to the Property. Mr. Becker has been associated with the Property for approximately twenty (20) years and Mr. Vogler has been associated with the Property for approximately forty (40) years. Weaver Boos obtained Mr. Becker's and Mr. Vogler's interview responses during our *site visit*. The interview responses are included throughout the *report*.

### **7.2 Interviews with Occupants**

Weaver Boos interviewed Messrs. Becker, Vogler, and Mr. Brandon Bonnano of MCM, identified by the *user* as representatives of the main *occupants* of the Property, concerning the current and past use of the Property, the facility operations, and recent improvements to the Property. Weaver Boos obtained their interview responses during our *site visit*. The interview responses are included throughout the *report*. Furthermore, Mr. Bonnano completed the Environmental Site Assessment Questionnaire included in **Appendix E – Environmental Records and Interview Documentation**.

Weaver Boos made a reasonable attempt to interview the tenant *occupants* of the Property during the *site visit*. However, our attempts proved unsuccessful as no one was available to speak with us. Weaver Boos identified this lack of a required interview as a *data gap*, which is discussed further in **Section 10.0**.

### **7.3 Interviews with Past Owner, Operators, and Occupants**

Weaver Boos was not provided information concerning contact information for the past owners, operators or occupants; therefore, past owners, operators, and occupants were not interviewed as part of this Phase I ESA. However, Mr. Becker and Mr. Vogler were employed as representatives of the prior owners and acted as key site managers with varying responsibilities

for twenty (20) to forty (40) years. Based on their interview responses and information obtained from other sources as summarized in this *report*, Weaver Boos believes that additional interviews with representatives of past owners, operators, or occupants would be duplicative of information already obtained and would not provide additional material information concerning the potential for contamination at the Property. Therefore, no other past owners, operators, and occupants were interviewed as part of this Phase I ESA.

#### **7.4 Interviews with Adjoining Property Owners or Occupants**

The Property is not abandoned therefore the ASTM E 1527-13 does not require *interviews* of the adjoining Property *owners* or *occupants*.

#### **7.5 Interviews with Local Government Officials**

Weaver Boos contacted the following federal, state, and local government agencies as discussed in **Section 4.2** during the Phase I ESA requesting environmental information associated with the Property:

- Baltimore County Fire Department;
- MDE;
- USEPA;
- Baltimore County Department of Permits Approvals and Inspections;
- Baltimore County Department of Health; and
- Baltimore County Department of Environmental Protection and Sustainability.

Weaver Boos submitted FOIA requests to or contacted the above-mentioned government agencies. Copies of each FOIA request and the responses, if applicable, received to date are included in **Appendix E – Environmental Records and Interview Documentation**.

As of the date of this *report*, a response from the Baltimore County Department of Health has not been received. Weaver Boos followed up with the Baltimore County Department of Health on April 28, 2014 and they requested we resubmit our FOIA request. Although the request was resubmitted, a response has not been received. Weaver Boos is currently coordinating with the Baltimore County Department of EPS to determine which records are available and pertinent to identifying *recognized environmental conditions* associated with the Property. We have requested select records and anticipate receiving them by mid-May 2014. Weaver Boos has received a response from the MDE as well as records from the Oil Control and Oil Permits



Programs of the Land Management Administration. We are currently coordinating with MDE to obtain additional records from the Land Restoration Program of the Land Management Administration. Weaver Boos also submitted an additional FOIA request to MDE on April 10, 2014 specifically requesting information from the Radiological Health Program. A response from MDE acknowledging receipt of our request was received on April 21, 2014 and indicated we will be notified if any pertinent records exist. Records received from the USEPA have been reviewed and summarized in **Section 4.2.3**. Weaver Boos will forward any information of interest to Bryan Cave LLP after it becomes available for review, if it significantly impacts our conclusions presented herein. Weaver Boos identified this lack of information as a *data gap* (see **Section 10.0**).

## **7.6 Interviews with Others**

Weaver Boos did not interview any others beyond those parties described in this *report*.

## **8.0 FINDINGS**

Weaver Boos has performed this Phase I ESA, in general compliance with the scope and limitations of ASTM E 1527-13. Exceptions to or deletions from this practice are described in **Section 1.5** and **Section 12.0** of this *report*.

The following is a summary of any known or suspect environmental conditions associated with the Property. These may be separated into the following categories: *recognized environmental conditions*, *historical recognized environmental conditions*, *controlled recognized environmental conditions* and *de minimis* conditions as discussed further in **Section 9.0** and following. Weaver Boos has identified a total of 285 Findings in connection with the Property as described in **Table 1: Property Findings**.

Based upon the assessments described in this *report*, this Phase I ESA revealed evidence of a total of twenty-eight (28) *recognized environmental conditions* and eight *historical recognized environmental conditions* in connection with the Property. These items have been described in **Table 1** as well as **Table 2: Property Recognized Environmental Conditions**. Additional information in regards to the *recognized environmental conditions* are described below in **Section 9.0**.

## 9.0 OPINION

The following is Weaver Boos' professional opinion regarding the potential impact of any known or suspect environmental conditions presented in **Section 8.0** and **Table 1**. Based on Weaver Boos review of historical documents, interview comments, regulatory records, and professional experience, select Findings presented in **Section 8.0** and **Table 1** have been identified below as either a *recognized environmental condition* or a *historical recognized environmental condition*. A *recognized environmental condition* is generally defined as the presence or likely presence of any *hazardous substances* or *petroleum products* in, on, or at the Property due to any release to the environment, under conditions indicative of a release to the environment, or under conditions that pose a material threat of a future release to the environment. A *historical recognized environmental condition* is generally defined as a past release of any *hazardous substances* or *petroleum products* that has occurred and been addressed to the satisfaction of the applicable regulatory authority. The remaining Findings were determined to not be applicable to either of these designations nor as *controlled recognized environmental conditions* or *de minimis* conditions as defined in **Appendix A** after further evaluation as discussed below and in **Table 1**.

### 9.1 REC-1 through REC-5: Special Study Areas (*Findings 1-130*)

On February 25, 1997, the USEPA filed a complaint under RCRA against BSC claiming that BSC operated a hazardous waste treatment, storage, or disposal facility and that a release of hazardous constituents had occurred. On October 8, 1997, BSC, the USEPA, and the MDE entered into a Consent Decree to address releases from historical and on-going operations at the facility. As required by the Consent Decree, BSC submitted a DCC Report on January 20, 1998 describing prior investigations and identifying potential sources of contaminants. As part of a SWI, the Consent Decree identified the following five Special Study Areas (SSAs) on the Property as priority areas for investigation: Tin Mill Canal and Finishing Mills Area, Humphrey Impoundment, Greys Landfill, Coke Point Landfill, and the Coke Oven Area. Findings relating to the 130 current or former features, locations, or incidents in the SSAs are listed on Table 1. Many of these features were removed from the Property by demolition before the site visit and could not be observed by Weaver Boos. Weaver Boos observed or attempted to observe the general area where listed features were formerly located in such instances. Other features were undergoing active demolition and due to safety concerns could not be observed by Weaver Boos. Weaver Boos' opinion regarding the likelihood that petroleum products or hazardous substances were released to soil, groundwater, or structures from such features or areas is based upon the

findings of the DCC Report prepared when they remained or were accessible in 1998, on our own observations of the general area during the site visit, and our prior knowledge and experience with similar facilities. Other areas identified in the DCC Report which were still present during the site visit and readily observable were noted, with their current conditions described in Table 1. Based on our review of the available information to date, the 130 Findings associated with the SSAs were identified as *recognized environmental conditions* (RECs on Table 2), *historical recognized environmental conditions* (HRECs on Table 1), or were not identified as a *recognized environmental condition* or *historical recognized environmental condition* as separated below:

- **REC-1** (Findings 1-60): Tin Mill Canal and Finishing Mills Area
  - Twenty-seven Findings identified as *recognized environmental conditions*
  - Five Findings identified as *historical recognized environmental conditions*
  - Twenty-eight Findings not identified as *recognized environmental conditions*
- **REC-2** (Finding 61): Humphrey Impoundment
  - One Finding identified as a *recognized environmental condition*
- **REC-3** (Findings 62-64): Greys Landfill
  - Two Findings identified as *recognized environmental conditions*
  - One Finding not identified as a *recognized environmental condition*
- **REC-4** (Findings 65-66): Coke Point Landfill
  - Two Findings identified as *recognized environmental conditions*
- **REC-5** (Findings 67-130): Coke Oven Area
  - Forty-five Findings identified as *recognized environmental conditions*
  - Nineteen Findings not identified as *recognized environmental conditions*

Based on our review of historical sources as well as interview comments conducted during this Phase I ESA, Weaver Boos believes that the activities being conducted in these areas under regulatory scrutiny for regulatory compliance are adequate to date to address the select Findings Weaver Boos' has identified as *recognized environmental conditions*. Future activities should continue to be conducted in coordination and in compliance with the appropriate regulatory agencies. However, as closure for these SSAs has not yet been granted, Weaver Boos has

identified the known and potential surface soil, subsurface soil, and groundwater impacts associated with the select Findings in the SSAs as outlined in **Table 1** and **Table 2** as *recognized environmental conditions*.

## **9.2 REC-6: Rod and Wire and Pipe Mill Area (Findings 131-164)**

As an IM, the Consent Decree requires the owner to continue to operate an existing remediation system at the former Rod and Wire Mill Sludge Bin Remediation Area. The remediation system consists of a groundwater pump and treat system to address impacts of cadmium and zinc. Operation of the system is ongoing and annual reports for this IM have been submitted annually since 1997. Findings relating to the thirty-four (34) current or former features, locations, or incidents in this area are listed on **Table 1**. During the *site visit* the area was observed to be vacant land, although the existing remediation system was observed. Continuing IM for the cadmium/zinc impacted groundwater is being conducted in select areas as per the Consent Decree (Findings 131-133). Additional areas were identified by the DCC Report to require further action (Findings 149, 153, 160, and 162) which is either currently ongoing or has yet to occur as described in **Table 2**. The remaining Findings were not identified as requiring further action by the DCC Report and therefore have not been identified as *recognized environmental conditions* by Weaver Boos. Similar to above, based on our review of the documents associated with the Consent Decree, DCC Report, and subsequent sampling activities, as well as interview comments conducted during this Phase I ESA, Weaver Boos believes that the activities being conducted in these areas under regulatory scrutiny for regulatory compliance are adequate to date. Future activities should continue to be conducted in coordination and in compliance with the appropriate regulatory agencies. However, as additional remediation work is still required and closure for this area has not yet been granted, Weaver Boos has identified the known and potential surface soil, subsurface soil, and groundwater impacts associated with select Findings at the Rod and Wire and Pipe Mill Area as *recognized environmental conditions*.

## **9.3 REC-7: Humphrey Creek Wastewater Treatment Plant (Findings 165-173)**

The HCWWTP is currently being used to treat discharges along the TMC consisting mainly of stormwater as well as water collected from the pump and treat system currently in operation at the former Rod and Wire Mill. Approximately thirty (30) tons of sludge filter cake is generated each week by the HCWWTP with water discharged to NPDES Outfall 014. Findings relating to nine current or former features, locations, or incidents associated with the HCWWTP are listed on **Table 1**. In general, the items in the DCC Report associated with the HCWWTP were identified as not releasing or requiring further action and no obviously apparent releases were

observed during Weaver Boos' *site visit*. Therefore these items (Findings 166, 168-170 and 172) have not been identified as *recognized environmental conditions*. According to the RFA Report sludge was noted on the ground surface near the HCWWTP sludge collection box (Finding 171), however during Weaver Boos' *site visit* no sludge or indications of a release was observed and therefore also has not been identified as a *recognized environmental condition*. Weaver Boos has identified three items associated with the HCWWTP as *recognized environmental conditions* as noted in **Table 2**: the HCWWTP settling basins (Finding 165), aerators (Finding 167), and an emergency detention basin (Finding 173) as these items are inferred to contain, or historically contained, a significant quantity of TMC sediment or WWTP sludge. The sediment or sludge is presumed to contain petroleum products or hazardous substances held within the structures. Based on our review of historical source information and experience, these areas likely contain potentially hazardous substances and/or petroleum products which may have resulted in a release to the environment and therefore has been identified as a *recognized environmental condition*.

#### **9.4 REC-8: Former Steel-Making Area (Findings 174-204)**

The former steel-making area includes portions of the land located north of the Coke Oven including but not limited to the caster building, BOF facilities, desulfurization plant, and sulfur recovery plant. Findings relating to thirty-one (31) current or former features, locations, or incidents in the steel-making area are listed on **Table 1**. Many of these features, such as those associated with the BOF Shop, were removed from the Property by demolition before the *site visit* and could not be observed by Weaver Boos. Weaver Boos observed or attempted to observe the general area where listed features were formerly located in such instances. Weaver Boos' opinion regarding the likelihood that petroleum products or hazardous substances were released to soil, groundwater, or structures from such features or areas is based upon the findings of the DCC Report prepared when they remained in 1998 and on our own observations of the general area during the *site visit*. In such general areas, Weaver Boos observed no indications of an existing release. Several features did remain and were observed during the *site visit*, such as the Caster Baghouse, where Weaver Boos saw no indications of a current release. The DCC Report reported no indications of a release in connection with twenty-seven (27) specific current or former features, and Weaver Boos observed no indications of releases in the same areas or in connection with the features that remained. Such features or areas are considered not considered to be *recognized environmental conditions* in the opinion of Weaver Boos. The remaining four areas not characterized as described above are as follows and noted in **Table 2**:

- **REC-8A** (Finding 199) Former ERS Oily Wastewater Tank: The DCC Report recommended further action owing to a lack of data or information regarding its impact to soil or groundwater. During the *site visit* the area was observed to be largely vacant with some debris piles and no obviously apparent indications that further action was taken was noted during this Phase I ESA. Based on our review of historical source information and experience, materials associated with the wastewater tank contained hazardous substances and/or petroleum products which may have resulted in a release to the environment. Therefore, this wastewater tank is considered a *recognized environmental condition* by Weaver Boos.
- **REC-8B** (Finding 202) No. 10 Fuel Oil Storage Tank: This former AST, along with several nearby historical ASTs, is identified in the DCC Report as a potential source of historical oil releases to the surface waters of the adjoining coal slip. This implies potential surface and/or subsurface transport of petroleum products in soil or groundwater as well, and is therefore considered a *recognized environmental condition* in the opinion of Weaver Boos.
- **REC-8C** (Finding 203) Oil House: According to FOIA documents provided by Baltimore County, an oil house was located in the former steel mill area east of the Shipyard. The use, condition, and status of the oil house are currently unknown and therefore may have caused a release to the environment. Therefore, Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with this oil house as a *recognized environmental condition*.
- **REC-8D** (Finding 204) Gas Pumping Station: According to FOIA documents provided by Baltimore County, a gas pumping station was located just southeast of the adjoining Shipyard in the former steel mill area. Based on interview comments, Weaver Boos understands that this station was associated with coke oven gas. A potential historical release of coke oven gas condensate to the environment may have occurred. Therefore, Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with the gas pumping station as a *recognized environmental condition*.

## **9.5 Blast Furnace Area (Findings 205-231)**

The blast furnace area includes but is not limited to the former sinter plant, the former A-K Furnaces, the current L Furnace, RIW facilities, and the former pilot plant. Findings relating to twenty-seven (27) current or former features, locations, or incidents in the blast furnace area are listed on **Table 1**. Many of these features, such as those associated with the A-K Furnaces, sinter

plant and pilot plant were removed from the Property by demolition before the *site visit* and could not be observed by Weaver Boos. Weaver Boos observed or attempted to observe the general area where listed features were formerly located in such instances. Weaver Boos' opinion regarding the likelihood that petroleum products or hazardous substances were released to soil, groundwater, or structures from such features or areas is based upon the findings of the DCC Report prepared when they remained in 1998 and on our own observations of the general area during the *site visit*. In such general areas, Weaver Boos observed no indications of an existing release. Several features did remain and were observed during the *site visit*, such as the L Furnace where Weaver Boos saw either no indications of a current release or localized oily staining of surfaces or oily water in *de minimis* quantities. The DCC Report reported no indications of a release and/or recommended no further action in connection with each of the current or former features. Therefore, such features or areas are considered not considered to be *recognized environmental conditions* in the opinion of Weaver Boos and no *recognized environmental conditions* were identified in this area.

#### **9.6 REC-9: Former Rolling Mills Area (Findings 232-239)**

The former rolling mills area is located south of the Humphrey Impoundment and Tin Mill Road and include a former scale pit, a former diesel fuel UST and a former surface impoundment. Findings relating to the eight current or former features, locations, or incidents in the former rolling mills area are listed on **Table 1**. This area was observed to be vacant land during Weaver Boos' *site visit* with no obviously apparent current releases. The DCC Report reported no indications of a release in connection with the former scale pit (Finding 232). In addition, the DCC Report recommended no further action associated with a spill which occurred in a slab cut off area (Finding 234). Such features or areas are not considered to be *recognized environmental conditions* in the opinion of Weaver Boos. A former diesel UST and fuel spill area (Findings 235 and 236) were identified in the DCC Report as requiring no further action as it had been remediated with MDE approval. Therefore, these areas have been identified as *historical recognized environmental conditions*. The remaining three areas not characterized as described above are as follows and noted in **Table 2**:

- **REC-9A** (Finding 233) Waste Oil Stabilization/Packing Area: The DCC Report recommended further action owing to a lack of data or information regarding its impact to surface soil, subsurface soil, or groundwater. During the *site visit* the area was observed to be largely vacant. Based on our review of historical source information and experience, materials associated with the waste oil stabilization/packing area may have



contained hazardous substances and/or petroleum products which may have resulted in a release to the environment. Therefore, this area is considered a *recognized environmental condition* by Weaver Boos.

- **REC-9B** (Finding 238) Rolling Mills Impoundment: Based on Weaver Boos review of the 1952 aerial photograph, a small, dark, rectangular image appearing to be a surface impoundment or pond is visible in the Primary Rolling Mills Area, directly southwest of the Big Apple water tank. Weaver Boos observed this area to be vacant during the *site visit*. Based on our review of historical source information and experience, this area may have contained potentially hazardous substances and/or petroleum products which may have resulted in a release to the environment. Therefore, Weaver Boos has identified this impoundment as a *recognized environmental condition*.
- **REC-9C** (Finding 239) Bulk Petroleum Storage: According to FOIA documents provided by Baltimore County, a bulk petroleum storage area was located northwest of the town in the former rolling mills area. It is unknown how many petroleum products were stored, the condition of the storage area, or the types and conditions of the storage containers. Therefore, a release to the environment may have occurred in this area and has been identified as *recognized environmental condition*.

#### **9.7 REC-10: ATEC (Findings 240-241)**

The former ATEC facility, which formerly conducted roll repairs, is located near the intersection of Wharf Road and Sparrows Point Road in the northeastern portion of the Property. During Weaver Boos' *site visit* one of the ATEC buildings was observed to have an approximate 1,000-gallon AST located along the western exterior wall of the ATEC building with a hazardous materials label. Adjacent to this AST inside the building a hazardous materials storage room was present observed to contain several additional ASTs and containers (Finding 240 in **Table 1**). The building was locked, and access could not be obtained during the site visit to determine the condition of these containers or whether any leaks or spills have occurred. Therefore, the potential presence of surface and/or subsurface impacts associated with these hazardous materials has been identified as a *recognized environmental condition* (**REC-10A** in **Table 2**).

According to our review of aerial photographs, a large circular structure which appears to be an AST surrounded by a circular berm is visible in the 1957 aerial photograph and appears to have been removed between 1994 and 2002 (Finding 241 in **Table 1**). Based on the size, location, and berm feature it is reasonably likely that this AST may have contained petroleum products. Based on the lack of information regarding this AST including its exact contents, condition, or

history of any spills or leaks Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with the AST as a *recognized environmental condition* (**REC-10B** in **Table 2**).

### **9.8 REC-11: Air Products (Findings 242-243)**

The remnants of the Air Products facility located south of Greys Yard, north of I-695 and west of the High Head Reservoir. This facility formerly supplied RG Steel with oxygen and nitrogen gas. Air Products appears to have salvaged selected equipment from the plant and initiated demolition after oxygen and nitrogen were no longer needed by RG Steel and then abandoned the facility with cold boxes cut open to spill their internal insulation onto the ground. The partly demolished plant was observed vacant and unoccupied during the *site visit*.

During the *site visit*, friable insulation of cryogenic cold boxes was observed exposed and released to the ground after their partial demolition (Finding 242 in **Table 1**). If the insulation is asbestos containing, the materials could enter water and soil in the area. Therefore, Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with these materials as a *recognized environmental condition* (**REC-11A** in **Table 2**). In addition, during the *site visit* oily surface water was observed on the surface of the adjoining High Head Reservoir (Finding 243 in **Table 1**). Booms had been placed around a discharge pipe coming from the Air Products facility, although the oily water was observed both inside and outside of this boom area. The source and nature of the oily-appearing surface water is currently unknown. Therefore, the potential presence of surface and/or subsurface impacts associated with this oily water has been identified as a *recognized environmental condition* (**REC-11B** in **Table 2**).

### **9.9 REC-12: Rail Yards (Findings 244-247)**

Based on Weaver Boos' experience rail yards are often associated with structures and activities that result in impacts to surface and/or subsurface soil and groundwater. Two main rail yards are located on the Property: Greys Rail Yard is located along the northern Property boundary north of Greys Landfill (Finding 244 in **Table 1**) and the Eastern Rail Yard is located near Contractor's Village east of the former hot mill building (Finding 245 in **Table 1**). However, based on our observations during the *site visit* and our review of historical information no buildings are currently or were formerly located at these two rail yards aside from an office building. As it appears that these two yards were likely mainly used for storage and rail car transfers, Weaver Boos has not identified them as *recognized environmental conditions*.

However, many other smaller yards were scattered throughout the Property. Specifically, the Maintenance of Way Yard (Finding 246 in **Table 1**) located north of the former ATEC facility was listed in the radius report in the UST database with a 12,000-gallon gasoline tank listed as permanently out of service. In addition, during the *site visit* three fuel dispensers were observed outside of a building in the yard with one marked as gasoline. The gate to this area was locked so access to allow closer observation of these fuel dispensers was not able to be obtained. It is unknown whether these pumps are associated with current or historical USTs, including the one listed in the radius report, or have underground piping which may have leaked or spilled onto the surface, subsurface, or groundwater. Therefore, the potential presence of surface and/or subsurface impacts associated with these fuel dispensers and associated UST systems have been identified as a *recognized environmental condition* (**REC-12A** in **Table 2**).

In addition, another small rail yard north of the two existing yacht clubs along the eastern boundary of the Property was observed during the *site visit* to contain several piles of fill soil or debris (Finding 247). Based on our review of aerial photographs, it appears fill materials may have been placed on the north side of the yard. The source and content of these fill materials is unknown as well as their extent into the subsurface. It is also unknown if impacts to soil or groundwater may have occurred from these fill materials, therefore, Weaver Boos has identified them as a *recognized environmental condition* (**REC-12B** in **Table 2**).

#### **9.10 REC-13: Transformers (Findings 248-249)**

A large number of transformers of varying sizes were observed on the Property during the site visit. In general, the transformers were in fair to good condition with no obvious indications of spills or leaks on or under the transformers. In addition, according to information included in the facility SPCC Plan approximately 420 transformers currently or historically operated at their numerous locations on the Property. According to Mr. Bonnano, the transformers remaining on the Property have all been tested for PCBs with varying results. Specifically, the DCC Report identified six ore dock crane-mounted PCB containing transformers (Finding 248 in **Table 1**). These transformers were replaced with non-PCB containing transformers in 1995, therefore the DCC Report recommended no further action be taken. Therefore, Weaver Boos has identified these six transformers were not considered to be *recognized environmental condition*.

Additionally, according to interview remarks by Mr. Bonnano, twenty-eighty (28) large PCB-containing transformers were identified on the Property after testing (Finding 249 in **Table 1**). At the time of the *site visit*, Mr. Bonnano stated that all but two of the transformers have been removed from the Property with the PCB materials removed and properly disposed of by

qualified sub-contractors. It is unclear where the exact locations of these twenty-eight (28) PCB-containing transformers were and are located and what the subsurface condition of the area of these transformers may be as no surface or subsurface assessment data has been provided. Therefore, Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with these transformers as a *recognized environmental condition* (**REC-13A** in **Table 2**).

#### **9.11 REC-14: Machine Shop No. 2 (Findings 250-251)**

During the *site visit*, structures associated with the former Machine Shop No. 2 were observed to have been demolished. Large piles of demolition material were observed to be located across the former Machine Shop No. 2 area. Weaver Boos understands based upon information acquired during interviews at the time of the *site visit* that the Former Machine Shop No. 2 was demolished on behalf of RG Steel by a contractor who salvaged the more valuable components of the building and then abandoned the resulting debris in numerous piles across this part of the Property, according to Mr. Bonanno. Apparent asbestos-containing debris was observed in at least one of the still exposed debris piles during the *site visit* (Finding 250 in **Table 1**). Weaver Boos understands that the abandoned debris is the subject of a current enforcement action by the MDE to be remedied and resolved by the combined efforts of Sparrows Point LLC and MCM as stated by Mr. Becker. As these debris piles are known to contain asbestos and are sitting on the bare ground surface where the materials may be deposited Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with the debris piles as a *recognized environmental condition* (**REC-14A** in **Table 2**).

In addition, according to Mr. Bonanno oily pit(s) or sump(s) are present in the Machine Shop No. 2 area of the Property and have yet to be cleaned or remediated (Finding 251 in **Table 1**). Due to safety concerns, Weaver Boos was unable to observe these features to note their condition and based on our review of historical records no testing has occurred in this area to assess if the oily materials may have migrated to subsurface soil and/or groundwater. Therefore, Weaver Boos has identified the potential presence of subsurface impacts associated with these pit(s) or sump(s) which contain oily water as a *recognized environmental condition* (**REC-14B** in **Table 2**).

#### **9.12 REC-15: Plant Garage/Formal Mason's Garage (Findings 252-254)**

The current Plant Garage (former Mason's Garage) is located north of the blast furnace area and south of the old Sparrows Point town. During the site visit the garage was observed to be conducting refueling and maintenance activities for the vehicles currently operating at the

Property and was observed with several ASTs, fuel dispensers, and drums. The visible drums were observed to be in good condition with no staining beyond *de minimis* quantities. Drums in this storage area were also identified at the time of the DCC Report as a no further action item. Therefore, Weaver Boos does not consider these to be *recognized environmental condition* (Finding 253 in **Table 1**). The ASTs also appeared to be in fair or good condition with either secondary containment or of a double-walled construction, but overfill leaks and staining near the tanks, dispensers and connection piping was observed on the bare ground surface during the site visit (Finding 252 in **Table 1**). These leaks which appear to have occurred over time and may have resulted in impacts to surface soils, subsurface soils, or groundwater and have been identified as a *recognized environmental condition* (**REC-15A** in **Table 2**).

In addition, according to interview remarks and the DCC Report USTs which contained gasoline, diesel fuel, and waste oil were closed without assessment sampling at the Plant Garage (Finding 254 in **Table 1**). The DCC Report identified this item as requiring further action however it does not appear any action other than removal of the UST(s) has occurred based on interview comments by Mr. Bonnano. Therefore, Weaver Boos has identified the potential presence of surface soil, subsurface soil and/or groundwater impacts associated with these USTs as a *recognized environmental condition* (**REC-15B** in **Table 2**).

### **9.13 REC-16 through REC-27: Other Property Locations (Findings 255-280)**

Miscellaneous locations on the Property were noted to have items which represented Findings but were not associated with a SSA, IM, or singular operational area on the Property. These items are outlined and discussed in **Table 1** and **Table 2** as well as below:

- Storm Water Sewer System (Finding 255): During the *site visit* multiple stormwater sewers were observed on the Property. The storm sewers appeared to be in good condition and no obviously apparent stains or spills were located near the sewers. The DCC Report identified the storm sewers as an item which required no further action. Therefore, Weaver Boos has identified the presence of the storm sewers were not considered to be a *recognized environmental condition*.
- **REC-16:** County Lands #1A (Finding 256): The County Lands #1A is located immediately east of Greys Landfill and was observed by Weaver Boos to be largely vacant with piles of materials during the *site visit*. According to the DCC Report and interview comments made by Mr. Becker and Mr. Bonnano during the *site visit*, this area was a former contractor storage area and may have been historically used to dispose of unknown types and quantities of wastes. The DCC Report recommended further action

in this area. Based on this information Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with historic dumping activities in the County Lands #1A area of the Property as a *recognized environmental condition*.

- **REC-17:** Coke Oven Gas Drip Legs (Finding 257): According to the DCC Report, Coke oven gas was distributed throughout the Property by pipeline for use as fuel. As the coke oven gas cooled, condensate would drop out of the pipeline and be removed at drip legs located throughout the distribution system. The DCC Report indicates that various volatile and semi-volatile chemicals may be present in these lines and thereby the drip legs and further action was recommended. No obviously apparent drip legs were observed during the *site visit*. However, according to interview comments by the site contact drip legs had been present and used on the Property. The exact location of the various drip legs is currently unknown, as well as if they were connected to a storage tank or allowed to discharge directly onto the ground. Weaver Boos has identified the potential surface and/or subsurface soil and groundwater impacts associated with these drip legs as a *recognized environmental condition*.
- Asbestos in Reservoir Warehouse Buildings to Remain (Finding 258): During the *site visit* suspect asbestos containing materials such as transite panels were observed in the warehouse buildings located in the northeastern portion of the Property east of the High Head Reservoir. According to Mr. Becker and Mr. Bonnano these warehouse buildings were not scheduled to be demolished and were to remain on the Property. Should activities take place in these buildings which may result in damage or destruction of these materials testing should be conducted to determine if asbestos is located in the buildings, and the materials should be managed in accordance with all applicable laws and regulations. Non-friable asbestos which would not impact soil or groundwater is considered a non-scope item in terms of the Phase I ESA (Non-Scope on **Table 1**).
- BGE Substations (Finding 259): During the *site visit* at least two large electrical substations were observed on the Property owned and operated by BGE. The substations were observed at a distance by Weaver Boos and appeared to be in good condition based on observations able to be made. As BGE is the owner of these substations they are required to maintain the facilities as per all applicable regulations. As no obviously apparent leaks or stains were observed Weaver Boos has not identified these substations as a *recognized environmental condition*.

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- Fly Dumping (Finding 260): During the *site visit* apparent fly dumping was observed on the Property mainly along roads outside of the main facility and in vacant and unmonitored areas. The materials consisted largely of general refuse, household equipment, and boats. According to interview comments by Mr. Becker, historical fly dumping has been continuing for many years and generally involved similar types of materials. To his knowledge, no hazardous materials or petroleum products have been dumped on the Property by unauthorized individuals. Therefore, Weaver Boos does not believe that the fly dumping on the Property constitutes a *recognized environmental condition*.
- Lafarge ASTs (Finding 261): Lafarge operates in the southeast portion of the Property producing cement additives. They have operated in this area since the 1970s. Lafarge's on-going operations were observed to include the bulk storage of slag, granulated slag, sand, or similar-appearing materials in outside stockpiles. Lafarge's active operations appeared to include the handling and transportation of these materials and operation of what appears to be a batching plant located near the southeast corner of the Property. Lafarge's facilities appeared to be reasonably operated and maintained, with no obviously apparent releases of petroleum products or hazardous substances during the *site visit*. According to the radius report, Lafarge is listed on the AST database with nine tanks that include motor oil, used oil, transmission oil, diesel fuel, gasoline, and gear oil. During the *site visit*, Weaver Boos observed several large ASTs in the Lafarge tenant space on the Property which contained materials such as used oil, petroleum, and other chemicals. Based on Weaver Boos observations of the visible containers, no obviously apparent leaks or staining were present around these ASTs. Therefore, the ASTs have not been identified as a *recognized environmental condition*.
- **REC-18:** Southern Slag Pile Demolition Debris (Finding 262): During the *site visit* large piles of slag were observed along the southeastern portion of the Property. Some of the piles were observed to contain unknown quantities of demolition or other debris. The amount and type of debris in these slag piles is unknown and it is unclear if any impacts to the surface or subsurface are present. Therefore, Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with these slag piles as a *recognized environmental condition*.
- Old Equipment, Debris, Drums, and ASTs on Bare Ground Surface (Finding 263): A large number of drums and ASTs are located throughout the Property and on the bare

ground surface. The vast majority of these containers are reported to be empty and no obviously apparent damage, leaking, or staining on or around the observable containers was noted during the *site visit*. As no obviously apparent releases were observed during the *site visit*, Weaver Boos has not identified the potential presence of surface and/or subsurface impacts associated with the containers as a *recognized environmental condition*.

- Radioactive Materials (Finding 264): During the *site visit* an area located in the former hot mill was observed to be marked with a radioactive materials placard. According to Mr. Vogler and Mr. Bonnano the radioactive materials had previously been removed from the equipment which utilized them and containerized and are stored in a vault in the former Dietrich Building on the Property. The vault appears to be in good condition with no obviously apparent leaking or staining and according to Mr. Bonnano is approved by the MDE. As a result, Weaver Boos has not identified the potential presence of surface and/or subsurface impacts associated with these radioactive materials as a *recognized environmental condition*.
- Brick Storage Building (Finding 265): During the *site visit*, a roofed open air structure identified as the former Brick Storage Building located south of the Tin Mill Canal and north of Tin Mill Road was observed to contain a large quantity of a variety of chemicals including acids, poisons, wastes, chemicals and petroleum products. The containers appeared to be in good condition with no obviously apparent leaks or staining beyond *de minimis* staining. Therefore, Weaver Boos has not identified the potential presence of surface and/or subsurface impacts associated with the containers in this building as a *recognized environmental condition*.
- **REC-19:** Pennwood Storage Tank Farm ASTs (Finding 266): During the *site visit* Weaver Boos observed an apparent tank farm located east of the blast furnace and north of the Pennwood Powerhouse. This area is also known as the Pennwood Tank Farm and had held fuel oil and recycled oil. Currently the ASTs are largely empty although a residual quantity of up to two feet of oil/water may be present according to Mr. Becker. No obviously apparent leaks or staining were observed during the site visit but due to the age of the ASTs corrosion and releases may have occurred. In addition, based on our review of the 1952 aerial photograph a dark area is located inside the berm which could indicate staining associated with a release from the AST system. Therefore, Weaver



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Boos has identified the potential presence of surface and/or subsurface impacts associated with these ASTs as a *recognized environmental condition*.

- Pennwood Powerhouse Staining and Sediments (Finding 267): During the *site visit*, the Pennwood Powerhouse was observed to contain large equipment, which had been shut down. Some staining of the equipment and under the equipment was observed. In addition, during the *site visit*, water was observed to have pooled on the floor of the Powerhouse. According to Mr. Vogler, at least one previous flood incident resulted in approximately ten (10) feet of water within the Powerhouse. The accumulated water reportedly drained through a hole in the floor, which leads to Pennbrook Canal, a manmade water feature, which eventually discharges to Old Road Bay. It is not anticipated that the flooding of these areas resulted in a significant release of hazardous substances and/or petroleum products to the environment from the staining observed and, therefore, Weaver Boos does not believe that this meets the definition of a *recognized environmental condition*.
- Current and Former Railroad Repair Building Activities (Findings 268-269): Historically an old railroad repair building was located northeast of the steel making area and repaired old locomotives (Finding 269 in **Table 1**). The area was observed to be vacant land during the *site visit* and no reports indicate that historical operations may have resulted in impacts to the Property. The current railroad repair (PBRR) building is located south of Humphrey Impoundment and north of Tin Mill Road (Finding 268 in **Table 1**). Current activities at the PBRR building consist of repairs to train cars and engines, including sand blasting and paint booths. Containers such as oil, used oil, paints and other chemicals are stored on site. However, operations at the facility appeared to be conducted in an appropriate manner, with the building being in generally good condition and only *de minimis* staining observed. Therefore, Weaver Boos has not identified the current and former railroad repair building activities as a *recognized environmental condition*.
- **REC-20:** Former Fuel UST at Contractor's Village (Finding 270): During the site visit Weaver Boos observed an area of storage buildings which make up the former Contractor's Village east of the Eastern rail yard. This area was historically used by subcontractors to the steel mill for equipment repairs and storage. According to Mr. Vogler, a diesel fuel UST was once located along the east edge of Contractor's Village and had previously been removed. It is unclear if any leaks or staining was observed when the UST was removed and no data regarding testing of the surrounding materials

has been provided to date. Therefore, Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with this UST as a *recognized environmental condition*.

- **REC-21:** Residential Town Tanks (Finding 271): Based on our review of *fire insurance maps* at least three buildings located in the Sparrows Point residential town were identified to have boiler rooms. Based on Weaver Boos experience, boiler rooms are often supplied fuel oil from tanks located within or along the exterior to the building. In addition, based on further review of the *fire insurance maps*, an additional nine tanks were noted in the former Sparrows Point residential town on the Property. No further information regarding these tanks is available including whether they are USTs or ASTs, their exact contents, use, removal, or history of spills or leaks. Therefore, Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with these tanks as a *recognized environmental condition*.
- Apparent Historical Surface Impoundment (B-Yard) (Finding 272): Based on our review of aerial photographs, a moderately large apparent surface impoundment in the 1952 aerial photograph exhibits sinuous braiding at the west end of the B-Yard located along the south side of the turning basin. This feature is not visible in later aerial photographs. Minimal hazardous materials were historically handled in this area and therefore it is unlikely that hazardous materials would have been placed in this impoundment. Therefore, Weaver Boos has not identified this impoundment as a *recognized environmental condition*.
- **REC-22:** Apparent Historical Surface Impoundment (“G” Gate) (Finding 273): Based on our review of aerial photographs, a small, dark, irregularly shaped image appearing to be a pond is visible immediately north of the Tin Mill Canal in the area that is now a vehicle parking lot just east of the "G" Gate along the south side of Route 158. This pond appears to be discharging a dark plume of materials to the adjoining surface water of the remnant Humphrey Creek. This historic feature is located north of the TMC/Finishing Mills Special Study Area boundary. As it is unclear what materials were being discharged and due to its close proximity to the TMC and historic association with Humphrey Creek Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with this impoundment as a *recognized environmental condition*.

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- Apparent Historical/Current Surface Impoundment (Blue Circle) (Finding 274): Based on our review of aerial photographs, a moderately large dark image appearing to be a surface impoundment is visible southwest of the Blue Circle Atlantic Cement Co. facility near the southeast corner of the Property utilized for miscellaneous material storage in the 1982 aerial photograph. This feature appears to remain visible in the 2011 aerial photograph. Few hazardous materials were historically handled in this area and it is unlikely that hazardous materials were located in this impoundment. Therefore, Weaver Boos has not identified this impoundment as a *recognized environmental condition*.
- **REC-23:** Miscellaneous Property Underground Storage Tanks (Finding 275): Weaver Boos observed no obviously apparent surficial indications of USTs on the Property during the *site visit*. However, please note that the presence of snow, equipment, and materials as well as active demolition activities limited site observations. According to interview remarks by Mr. Becker, to the best of his knowledge, all regulated USTs were previously closed or removed from the Property aside from septic tanks. According to documents provided by Mr. Becker, twelve (12) USTs formerly located at the Property were “closed” between November 1989 and March 1990. Eleven (11) were removed from the ground while a 10,000-gallon lubricating oil UST was closed in place at the Pennwood Power Station. While Weaver Boos was able to observe the area of former USTs near the plant garage, the majority of the UST locations were not able to be exactly discerned or observed. In addition, TPH was detected above MDE cleanup standards during closure of the USTs at the Spare Parts Yard, Masons Garage, Truck Dock 33, One Spot Car Fuel, and 68-in Hot Strip Mill. No further information on whether these locations were remediated or what, if any, further action was taken is available.

In addition, based on information provided in the ERIS Report and as described in **Section 4.1.1** and **4.1.2**, numerous USTs may have been or are currently located on the Property under various facility names and addresses in seven listings. The ERIS Report describes up to a total of thirty-four (34) USTs, although it is unclear if each of the listings describe additional USTs beyond the twelve (12) mentioned previously. According to documents provided by the Baltimore County Department of Permits, Approvals, and Inspections, only one UST has been removed and one abandoned in place. No other UST removals or abandonments are reported in the County records. Based on this information, it is unclear how many USTs were or may currently be located on the Property. As these USTs are reported to have held hazardous chemicals or petroleum products and as several of these USTs have known impacts to the subsurface

environment Weaver Boos has identified the known and potential presence of surface and/or subsurface impacts associated with these USTs as a *recognized environmental condition*.

- **REC-24:** Miscellaneous Property Spills (Finding 276): According to the ERIS report, the Property is listed numerous times in the ERNS, HMIRS and OCP database relating to spills of materials including but not limited to wash oil, waste oil, PCBs, oils, chemicals, spent pickle liquor and other materials ranging in size from 1-gallon to 5,000-gallons. Many of these spills were of a quantity larger than 100-gallons, had no cleanup performed, or otherwise had no information (i.e. spills which would not be considered *de minimis* in nature for the Property). The exact locations of these spills are currently unknown. As the release of the chemicals and quantities involved in the identified incidents noted throughout the report may have resulted in impacts to the environment Weaver Boos has identified them as a *recognized environmental condition*.
- **REC-25:** Shipyard Apparent Impoundment (Finding 277): Based on Weaver Boos review of aerial photographs, by 1938 what appears to be a large surface impoundment is visible just north of the coal slip and coal yard. It extends northerly onto what is presently Shipyard property just east of the Shipyard's Graving Dock, although according to Mr. Becker this plume is entirely on the Shipyard property. Apparent dark plumes on the adjoining surface waters of Bear Creek and the Patapsco River suggest process water discharges from the surface impoundment. This feature is present until at least 1952 on aerial photographs. Based on our review of historical source information and experience, this area may have contained potentially hazardous substances and/or petroleum products which may have resulted in a release to the environment. Therefore, Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with this impoundment as a *recognized environmental condition*.
- **REC-26:** TMC Oil Recovery Plant and Impoundment (Findings 278): Based on Weaver Boos review of the 1964 aerial photograph, a small Oil Recovery plant is present just north of the TMC, and an apparent small, rectangular surface impoundment is visible to the southwest. The impoundment is diked to separate it from the remaining surface water of Humphrey Creek. Based on our review of historical source information and experience, this area may have contained potentially hazardous substances and/or petroleum products which may have resulted in a release to the environment. Therefore,

Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with this impoundment as a *recognized environmental condition*.

- **REC-27:** Former Coke Point Process Tanks (Outlying) (Finding 279): Based on our review of aerial photographs and topographic maps, a large number of ASTs on the southern portion of the Property presumably associated with Coke Point and the associated coke ovens were identified. The ASTs were not observed during the *site visit* with the area largely vacant land. Many of these former tanks and their associated structures are in areas not included in the Coke Point SSAs even though they appear to have been part of the coke oven process. As subsurface impacts have been identified within other areas of the former coke oven processes (such as within the Coke Point SSA) it is likely that impacts may be present in this area as well. Therefore, Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with these ASTs as a *recognized environmental condition*.
- **Mud Reservoir (Finding 280):** The Mud Reservoir is a diamond-shaped area of mixed open/wooded land located in the County Lands 2 (CL2) Parcel in the northwestern portion of the Site. Much of the CL2 is developed and includes the former Pipe Mill and Cold Mill complexes. The Mud Reservoir received mud and clays from the former Humphrey Impoundment. Based on Weaver Boos' review of the organic data for VOCs, SVOCs, PAHs, and PCBs, concentrations were non-detect to minimal ppb levels. Sufficient data exists to conclude that no further assessment or action is warranted. Therefore, Weaver Boos has not identified the Mud Reservoir as a *recognized environmental condition*.

#### **9.14 REC-28: Adjoining Properties (Findings 281-285)**

Based on the selection criteria discussed in **Section 4.1** as well as information provided in the radius report, the presence of roads, structures, underground utilities, the distances from the Property, the geology in the area of the Property, and/or Weaver Boos' observations during our *site reconnaissance*, Weaver Boos does not believe the reported database listings represent a *recognized environmental condition* in connection to the Property aside from those listed below and discussed in **Table 2**:

- **REC-28A:** Adjoining Property USTs (Finding 281): According to the ERIS report, the following up-gradient adjoining properties are listed in the UST database:

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- Dietrich Industries Inc. located at 8911 Bethlehem Boulevard (northeast adjoining property) is listed on the UST database for two USTs of gasoline and an unknown listed as permanently out of use.
- American National Can Company located at 2010 Reservoir Road (northern adjoining property) is listed on the UST database for seven USTs of unknown materials listed as permanently out of use.
- Greiff Brothers Corporation located at 2500 Grays Road (northern adjoining property) is listed on the UST database with one 10,000-gallon diesel UST and one 4,000-gallon diesel UST listed as permanently out of use.
- AMG Resources Corporation located at 2415 Grays Road (northern adjoining property) is listed on the UST database with four USTs of heating oil listed as permanently out of use.

As the status of the USTs, including whether any leaks or spills have occurred which may migrate on to the Property, is currently unknown Weaver Boos has identified the potential presence of surface and/or subsurface impacts on the Property from these USTs as a *recognized environmental condition*.

- **REC-28B:** Adjoining Property Spills (Finding 282): Various spills as identified in **Section 4.1** have occurred on properties near the Property. These materials are or may have been potentially hazardous substances and/or petroleum products which may have resulted in impact to the environment which could have migrated on to the Property. Therefore, Weaver Boos has identified these spills as a *recognized environmental condition*.
- **REC-28C:** Kiel's Auto Repair (Finding 283): Kiel's Auto Repair located at 4700 North Point Road (adjoining approximately 85 feet northeast of the Property across North Point Boulevard) is listed on the OCP database with case number 10-0620BA that was opened May 2010 and remains open. It is unknown what the source of this incident or the current status is referring to. However, as the OCP database relates to petroleum products and due to the nature of auto repair facilities, it is likely that these materials are or may have been petroleum products which may have resulted in impact to the environment which could have migrated on to the Property. Therefore, Weaver Boos has identified these spills as a *recognized environmental condition*.

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- **REC-28D:** AMG Resources (Finding 284): Vulcan Materials Division (currently AMG Resources Corporation) located at 2415 Grays Road (northern adjoining property) is listed on the SHWS database with no further information provided. The site is listed on the CERCLIS database as an archive site in April 1990. No further details regarding these listings are available. The SHWS and CERCLIS sites are generally associated with hazardous materials and/or petroleum products. In addition, the current AMG Resources Corporation is a processor and marketer of ferrous & non-ferrous scrap metal and a supplier of prime and secondary steel products according to its website. As it is unclear what the ERIS database listings pertain to or what the current status of the facility is given its historic and current industrial nature the potential is present that hazardous materials and/or petroleum products may have released to the environment and migrated on to the Property. Therefore, Weaver Boos has identified the potential presence of surface and/or subsurface impacts associated with these listings and property uses as a *recognized environmental condition*.
- **Sparrows Point Shipyard** (Finding 285): Sparrows Point Shipyard, which had historically been a part of the Property but is now considered an adjoining property, has been used for industrial activities since the late 1800s including ASTs, industrial processes, and the use of petroleum products and other chemicals. The Shipyard listed on the ERNS database with various spill incidents. In most cases the materials are reported to have been contained and cleaned, but in at least seven instances no cleanup details were provided. The address is also listed in the SHWS database under the name Bethlehem Steel Shipyard. No further information is provided. Finally, the address is also listed in the SHWS and Voluntary Cleanup Program databases under the name Sparrows Point Shipyard LLC. As this facility is considered down-gradient to the Property it is unlikely that the aforementioned spills or listings resulted in impacts that would have migrated onto the Property. Therefore, this facility has not been identified as a *recognized environmental condition*.

## **10.0 DATA GAPS**

ASTM E 1527-13 defines a *data gap* as lack of or inability to obtain information required by the practice despite *good faith* efforts by the *environmental professional* to gather such information.

As of the date of this *report*, a response from the Baltimore County Department of Health has not been received. Weaver Boos has received a response and a portion of the available records from the MDE and is coordinating with them to retrieve additional appropriate records. Weaver Boos submitted an additional FOIA request to MDE on April 10, 2014 specifically requesting information from the Radiological Health Program. Although the request has been acknowledged, a response regarding the availability of records has not been received as of the date of this *report*. Weaver Boos lists the lack of requested FOIA information as a *data gap*. Due to the lack of FOIA responses from the aforementioned offices, Weaver Boos was not able to fully evaluate whether recognized environmental conditions are present at the Property. Weaver Boos believes that this *data gap* may potentially be significant in our assessment of whether *recognized environmental conditions* exist on the Property. Weaver Boos identified this lack of information as a *data gap* until such time as additional information suggests otherwise.

Weaver Boos was unable to observe the tenant spaces of the Property as no contact was able to be made with representatives during the *site visit*. Based our experience with similar situations, we believe that observation of that location is important in determining whether a *recognized environmental condition* exists.



## **11.0 CONCLUSIONS**

Weaver Boos has performed this Phase I ESA, in general compliance with the scope and limitations of ASTM E 1527-13 of 1430 Sparrows Point Boulevard and 5111 North Point Boulevard in Sparrows Point, Maryland, the Property. Exceptions to, or deletions from, this practice are described in **Section 1.5** and **12.0** of this *report*.

Based upon the assessments described in this *report*, this Phase I ESA revealed evidence of a total of twenty-eight (28) *recognized environmental conditions* and eight *historical recognized environmental conditions* in connection with the Property. These items have been described in **Table 1** as well as **Table 2: Property Recognized Environmental Conditions**.

As of the date of this *report*, a response from the Baltimore County Department of Health has not been received. Weaver Boos has received a response and a portion of the available records from the MDE and is coordinating with them to retrieve additional appropriate records. Weaver Boos submitted an additional FOIA request to MDE on April 10, 2014 specifically requesting information from the Radiological Health Program. Although the request has been acknowledged, a response regarding the availability of records has not been received as of the date of this report. Weaver Boos lists the lack of requested FOIA information as a *data gap*. Due to the lack of FOIA responses from the aforementioned offices, Weaver Boos was not able to fully evaluate whether recognized environmental conditions are present at the Property. Weaver Boos believes that this *data gap* may potentially be significant in our assessment of whether *recognized environmental conditions* exist on the Property. Weaver Boos identified this lack of information as a *data gap* until such time as additional information suggests otherwise.

## **12.0 DEVIATIONS**

Deletions and deviations from ASTM E 1527-13 during this Phase I ESA are described in **Section 1.5** of this *report*.

**13.0 REFERENCES**

1. American Society for Testing Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-13).
2. American Society for Testing Materials (ASTM) *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions* (ASTM E 2600-10)
3. Documents summarized in **Table 3: Environmental Document Compendium**.

**14.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL**

“I declare that I have completed this Phase I ESA under the direct supervision of an *environmental professional*” (see below).



---

Chrystine Shelton  
Project Manager

“I, declare that, to the best of my professional knowledge and belief, I meet the definition of *environmental professional* as defined in §312.10 of 40 CFR 312” and

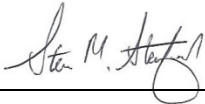
“I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.”

This Phase I ESA was performed by, or under direct supervision of, the undersigned *environmental professional*. Resumes are included in **Appendix G - Personnel Qualifications**.



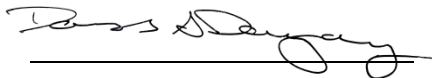
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Carolyn Feltz  
Senior Project Manager



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Steven M. Stanford  
Senior Project Manager



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Douglas G. Dorgan  
Principal



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PREPARED FOR:  
  
**BETHLEHEM STEEL CORPORATION**

**PROPERTY LOCATION MAP**

BETHLEHEM STEEL CORPORATION  
 SPARROWS POINT, MARYLAND

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DRAWN BY: RD  
 REVIEWED BY: CS  
 DATE: 3/25/2014  
 FILE: 2570-306-01  
 CAD: SITELOC.DWG

**FIGURE 1**



SOURCE: AERIAL IMAGE ADPATED FROM GOOGLE EARTH IMAGERY DATED OCTOBER 2010.  
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PREPARED FOR:  
  
**BETHLEHEM STEEL CORPORATION**

**PROPERTY LAYOUT MAP**

BETHLEHEM STEEL CORPORATION  
 SPARROWS POINT, MARYLAND

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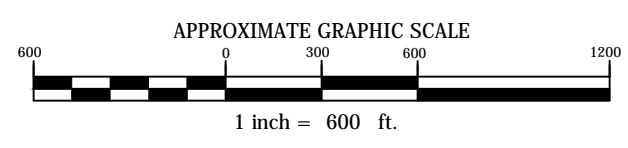
DRAWN BY: RD  
 REVIEWED BY: CS  
 DATE: 3/25/2014  
 FILE: 2570-306-01  
 CAD: SITELOC.DWG

**FIGURE 2**



SOURCE:  
AERIAL IMAGERY ADAPTED FROM GOOGLE EARTH DATED AUGUST 2010.

BOUNDARY INFORMATION ADAPTED FROM BOTH THE SITE OPERATIONAL BOUNDARIES MAP BY ENVIROANALYTICS GROUP DATED DECEMBER 2013, AND THE FORMER BETHLEHEM STEEL SITE MODIFIED CONSENT DECREE REGULATED AREAS FIGURE BY ENVIRONMENTAL OPERATIONS, INC. DATED NOVEMBER 2012.



- LEGEND**
- APPROXIMATE BOUNDARY
  - SPECIAL STUDY AREAS
  - INTERIM MEASURES AREA
  - RECOGNIZED ENVIRONMENTAL CONDITIONS (REC)
- FINDINGS AND REC IDENTIFICATION**
- FINDING 262 REC - 20

NOTE: REC'S NOT DEPICTED ON THIS FIGURE ARE CURRENTLY UNABLE TO BE SPECIFICALLY LOCATED.

**RECOGNIZED ENVIRONMENTAL CONDITIONS**

FORMER RG STEEL  
SPARROWS POINT, MARYLAND

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	DATE: 5/16/2014
	FILE: 2570-306-01
	CAD: BASE5-15-14.DWG
CHICAGO, ILLINOIS (312) 922-1030 www.weaverboos.com	<b>FIGURE 3</b>

